

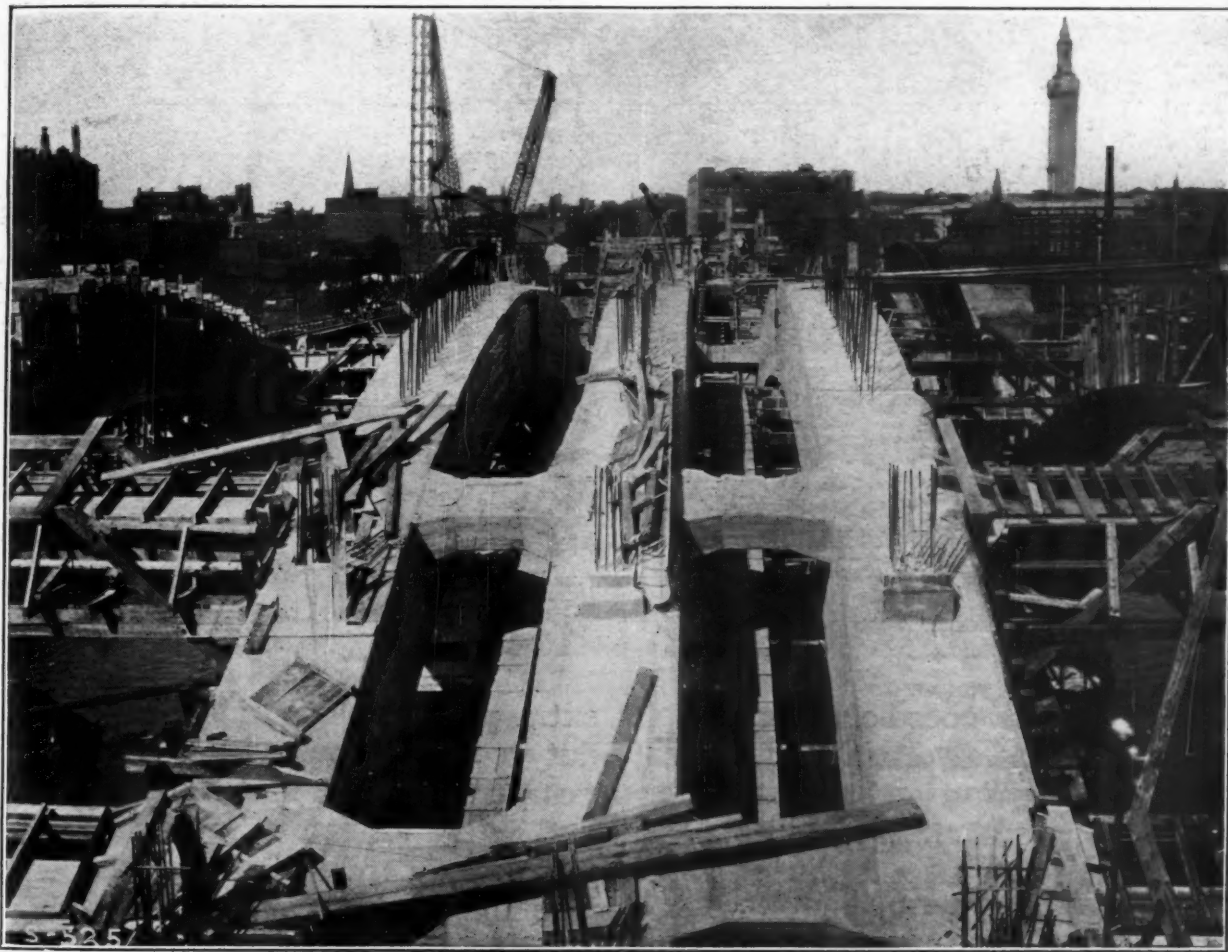
JUL 5 1922

PUBLIC WORKS

CITY

COUNTY

STATE



ARCH RIBS OF SPRINGFIELD-WEST SPRINGFIELD BRIDGE AND CONNECTING BRACES CON-
CRETED, READY FOR SUPERSTRUCTURE.

IN THIS ISSUE

Pennsylvania State Highway Organization
Denitrification by Bacteria

Constructing Arch Ribs of Springfield Bridge
Asphalt Macadam in Kansas City

Engineers' Plans for State Health Boards

JULY 1, 1922

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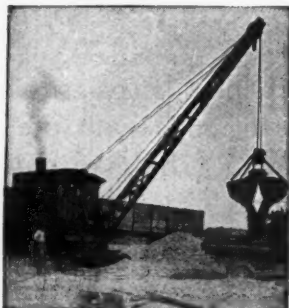
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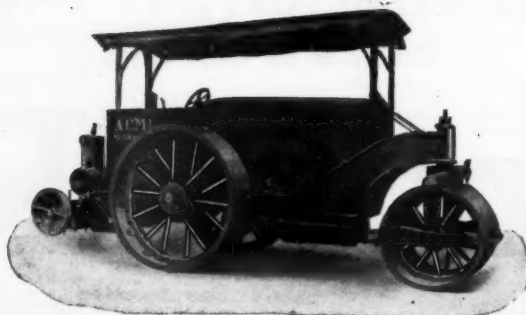
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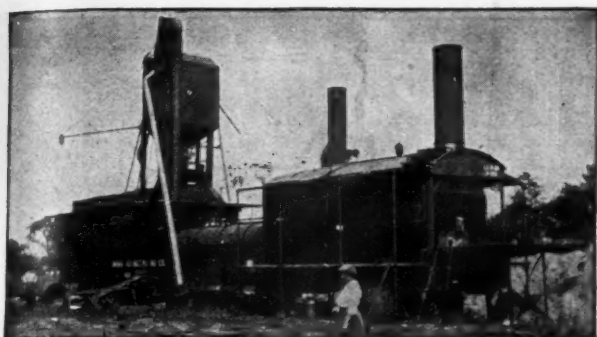
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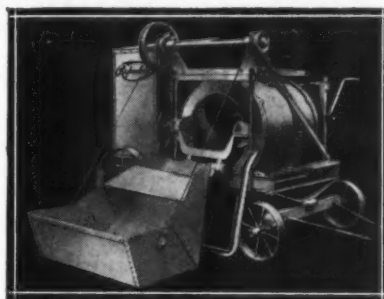
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Every advantageous feature necessary in the perfect protection of concrete edges has been incorporated in **Truscon Curb Bars**. Examine these distinctive features in the accompanying illustration and then have your favorable decision more than confirmed by sample which we will send you and by actual use in your own work. Scientific design, practical efficiency and economy in manufacture are combined in **Truscon Curb Bars**.

Truscon Curb Bars are manufactured under powerful machinery from special steel sections, so designed as to give ample protection without waste of material. The plate and anchorage are a single section of steel, insuring uniform distribution of shocks throughout the concrete and preventing the loosening of the plate. The positive nature of this anchorage makes it entirely independent of adhesion of the concrete. The open spaces in the anchorage allow the concrete to flow around it and prevent the separation of the concrete at the corner. The rigidity and convenient size of **Truscon Curb Bars** make them easy to handle and install.

Truscon Curb Bars are manufactured from the highest grade of open-hearth steel, and are heavily galvanized after forming. Prompt shipments are furnished either of the straight or curved bars. The standard lengths are 6, 8, 10 and 12 feet.



TRUSCON STEEL COMPANY, Youngstown, Ohio

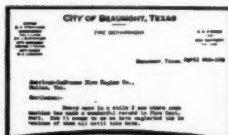
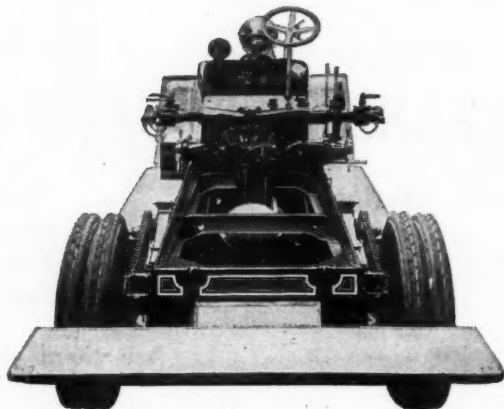
Warehouses and Representatives in Principal Cities

One Reason for the Long Life of American-LaFrance Fire Apparatus—The Sturdy Frame

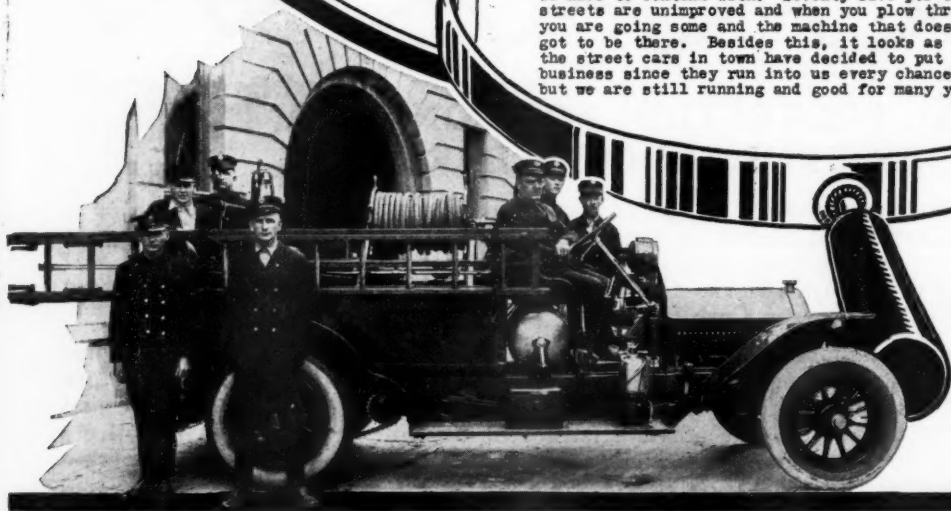
The very nature of fire service compels high speed over all types of roads. The load carried is tremendous and unyielding.

The American-LaFrance frame is especially designed to stand years of terrific service without distortion. It is a pressed steel channel section, 6 in. deep, 5 in. wide at the center and 1/4 in. thick. A heavy pressed steel rear member and rugged pressed steel cross members preserve perfect alignment in all working parts. All riveting is done by the hot rivet process. The result is world famous endurance for American-LaFrance fire apparatus.

Chief S. D. O'Connor of Beaumont, Texas, has an American-LaFrance Type 5 which has seen eleven years of the hardest kind of service. It is because most fire chiefs insist on this sort of service that 90% of our American citizens have American-LaFrance motor driven fire apparatus in their fire departments.



We have an old battle scarred warrior here, an old type 5 combination hose and chemical that has been in service since the 16th of August 1911. This machine has averaged better than 250 runs per year ever since going into service. Everyone that has ever lived in South East Texas knows the quantity and quality of mud we have here and can appreciate what we have to contend with. Seventy-five per cent of our streets are unimproved and when you plow through them you are going some and the machine that does it has got to be there. Besides this, it looks as though all the street cars in town have decided to put it out of business since they run into us every chance they get, but we are still running and good for many years yet.



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PUBLIC WORKS.

CITY

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A Combination of "MUNICIPAL JOURNAL" and "CONTRACTING"

Vol. 53

July 1, 1922

No. 1

Pennsylvania State Highway Organization

Rational classification of responsibilities and operation by an interlocking system of executive management, construction and maintenance division, supplemented by township and automobile division and the auditing and accounting departments, totaling more than 500 staff employees required in 1921 for the expenditure of \$43,000,000, maintenance of more than 10,000 miles, and construction of 678 miles of improved highways.

The State of Pennsylvania has an area of 80,000 square miles, much of which is mountainous, and a population of 10,000,000 served by about 100,000 miles of highways of which 10,200 miles are included in the State Highway System of primary and secondary roads constructed, maintained, improved and controlled by the State Highway Department with its headquarters located in the capitol building at Harrisburg.

Under the policy of the present gubernatorial administration extending from 1911 to 1923, the organization of the Highway Department has been perfected and extended and plans made for the expenditure of \$50,000,000 on the construction during the four years of about 2,000 miles of improved hard-surface roads, of which 678.61 miles were completed during 1921, at a cost of about \$36,000,000 while \$9,500,000 was expended during the same year for maintenance; both in accordance with the general policies outlined in PUBLIC WORKS for November 19, 1921, where the principles governing the selection and improvement of state roads, types of roads adopted, and other features, were discussed.

POLICY

With a determination to utilize the resources and the activities of the Highway Department to the greatest advantage of the State, its organization and development, equipment and operation under Governor Sproul, former commissioner Louis S. Sadler and the present commissioner George H. Biles, have fully eliminated political interference and it has been conducted on rigid business principles with economy and efficiency so as to secure the most rapid, enduring and valuable results with safe and permanent construction calculated to develop the resources of the country, improve transportation and facilitate commerce by a wise combination of a great number of separate improvements properly selected and located for the combined interests of local and general welfare.

Abundant research and investigation have been made and continue to form the basis and direct the

policy of the department so as to create high-class standards of construction materials, labor and equipment and a uniform application so as to insure the best results and greatest economy and interchangeability and permit the training of a great corps of skilled specialists.

The executive department has built up very comprehensive and elaborate bureaus and divisions operating harmoniously and accurately without interference and equipped with highly efficient systems and approved appliances for recording, editing, accounting and other operations, by which the progress of all work is duly posted and is available at all times for examination by inspection or rapid comparison for definite information.

Special study has been given to the selection and operation of a large amount of mechanical equipment and to the location, testing and approval of construction materials to utilize local supplies, reduce costs, and improve quality of roads.

The interests of the citizens and fair appreciative treatment of contractors have been equally considered and constant efforts have been made to select and train the personnel of the staff so as to develop special qualities and abilities for the mutual benefit of the employees and of the State, encouraging zeal and loyalty and stimulating and rewarding ambition.

The relation, combination and character of the different divisions and their bureaus are graphically indicated by the functional chart which shows the control through the executive division of the construction and maintenance divisions, each of them operating in 15 different districts into which the State is geographically divided, and the township and automobile division; also the direct control through the management division which is assisted by the auditing and accounting division.

EXECUTIVE DIVISION

The executive division, consisting of the commissioner and the assistant commissioner, which is mostly concerned with the policies of the department, exercises supervision over the entire organization.

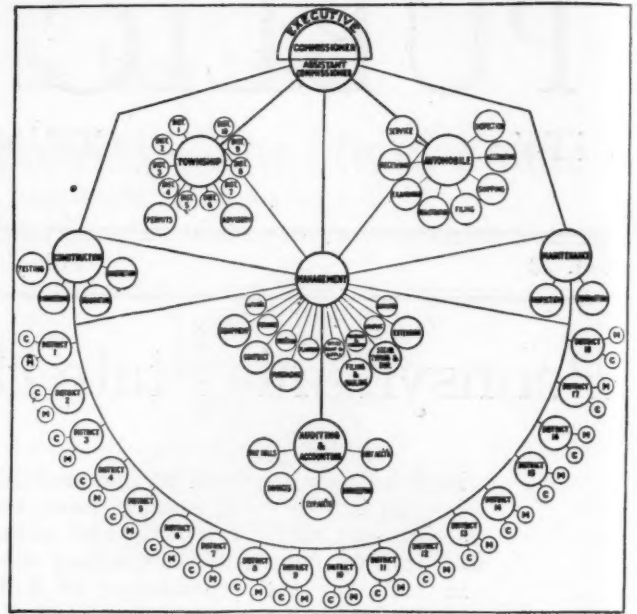
coordinates and controls all activities of the department to the end of efficiency and the elimination of friction and duplication. The policies are determined at conferences with the heads of the other divisions who direct details and are held responsible for results.

MANAGEMENT DIVISION

The operation of the executive division is through the management division, which serves as a clearing house through which the policies are reduced to standard procedure for the construction, maintenance, township, automobile, and auditing and accounting divisions. This division employs the most up-to-date principles of industrial management. It determines the operations of the departments in accordance with the legal requirements that are formulated from a complete and careful analysis of the various statutes.

The management division schedules the performance of all phases of the department work and disseminates the schedules graphically and uniformly and follows them up, investigating all complaints and delays. It is represented at each department conference on investigation and research and supervises the combination of its findings from which standard methods of operation are devised for all phases of the department work.

It supervises the publication of all bulletins, periodicals, statements and reports and charts that tend to establish public confidence. It controls the system and methods of procedure in all other divisions and controls all the office equipment and supplies. It supervises the work of all interlocking and overlapping sub-divisions such as purchasing, equipment, contract, information, stenographic, typing, duplicating, filing, and mailing.

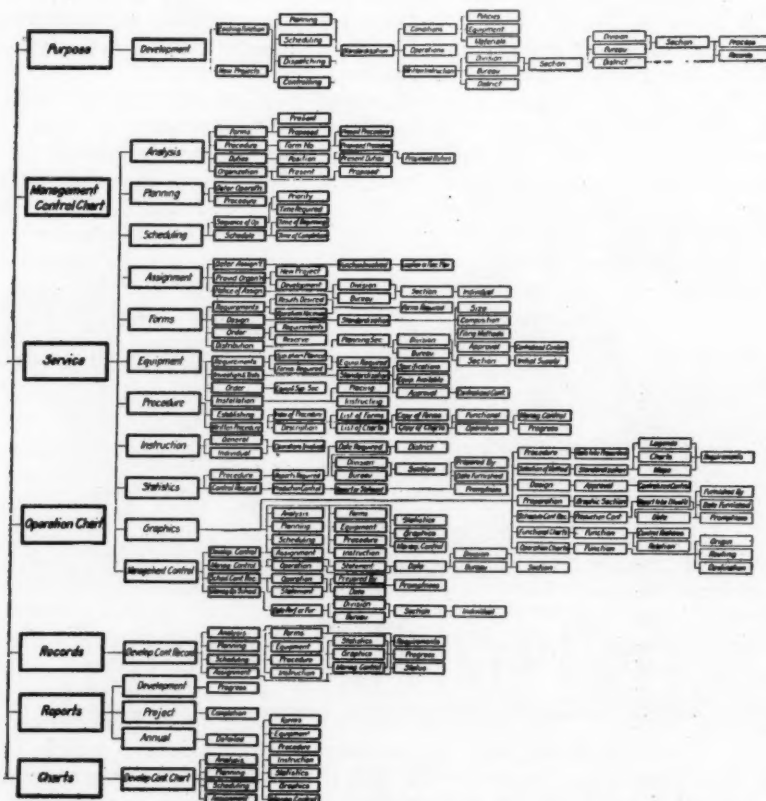


FUNCTIONAL ORGANIZATION CHART.

It provides complete record of the personnel of the department, adjusting differences, assisting and in general developing the employees to fill positions for which they are best fitted and where they can render the best services to themselves and to the organization. It prepares records and statistics of the organization and execution of all work on charts from which results and conditions can be easily seen by inspection and used for future estimates and decisions.

It has a purchasing bureau with a highly specialized organization fully informed on the price, location, quality, transportation and storage of great quantities of supplies and materials. There is a contract bureau with a legally experienced head to handle construction matters, an equipment bureau with a mechanical engineer responsible for the selection and inspection of equipment and instructions to operators for the execution of standard repairs.

There is an information bureau for the distribution of news to the public in a uniform and profitable manner, a stenographic, typing and duplicating bureau doing the work of the entire department (except the automobile division) and balancing extra demands in one place with diminished work in another so as to make a sort of clearing house and conduct the great amount of detail work with minimum constant force and without undue delay. The filing and mailing bureau handles all outgoing and incoming correspondence and classifies it with a simple system of unit symbols and divisions, with indexes which make all data immediately available in the different divisions and bureaus.



FUNCTIONAL CHART, MANAGEMENT DIVISION—PLANNING SECTION.

typewriting and proofreading. It prepares from the application itself a registration certificate which is proofread to be exactly in accordance with the application, duplicated for numerous records and filed alphabetically and numerically according to the manufacturers' and engine numbers on the cards, thus assisting materially in the recovery of stolen vehicles.

The filing bureau handled last year about 2,000,000 cards arranged to give very prompt information on any subject recorded there and especially adapted to assist in the recovery of the large number of stolen vehicles reported. The shipping and mailing bureau is supplied with automatic machinery handling as far as possible the stamping of mail and the sealing and stamping of cards.

The inspection bureau enforces the law and safeguards the public with a corps of inspectors that patrol the highways and record infractions of the law. It revokes licenses, assists in the recovery of stolen cars and publishes lists of them and of registrations.

AUDITING AND ACCOUNTING DIVISION

This division handles and audits all disbursements of the department amounting to a maximum of more than \$43,000,000 per year. The payroll bureau handles all salaries, investigates irregularities in the field, verifies the distribution of payroll costs and prepares vouchers to secure advances and reimbursements from the fiscal officers.

This division has an organization for checking and codifying expense accounts, audits, and pays invoices and verifies the distribution of all charges. It also keeps on file the vendors' records. Bookkeeping machines are used to register perpetual balances on all authorizations for which expense has been incurred.

DEPARTMENTAL ROSTER

The principal members of the staff in the different divisions include Commissioner George H. Biles, secretary Howard W. Fry of the executive division, chief engineer William D. Uhler, superintendent of construction Crosby Tappan, principal assistant engineer Harold E. Hilts, engineer of tests Horatio S. Mattimore, construction engineer Paul M. Tebbs, engineer of plans and surveys George H. Elsenhans, consulting bridge engineer Willis Whited, bridge engineer Emory E. Brandow of the construction division, township commissioner Joseph W. Hunter of the township division, assistant maintenance engineer William A. Van Duzer, and two inspectors in the maintenance division, registrar Benjamin G. Eynon of the automobile division, George G. Hatter, executive manager of the Management division and acting comptroller of the auditing and accounting division, Melville H. James, director of Extension division, and Frank O. Ewell, equipment engineer.

STAFF EMPLOYEES

The classification of the staff as shown by an elaborate organization chart includes, under the township commissioner, an engineer, assistant township engineers, inspectors, township clerk, permit clerk and general clerk.

In the construction department, a chief engineer, principal assistant engineer, engineer of tests, with assistant engineer, four plant inspectors, two road

inspectors, 15 material inspectors, laboratory clerk, receiving and shipping clerk, file clerk, two stenographers, a typist, five cement samplers, a chemist, two assistant chemists, twelve laboratory assistants, one laboratory apprentice, one physicist, one assistant physicist, three laboratory assistants, one core-drill operator and one truck driver; a construction engineer, one office assistant, one construction clerk, one assistant construction clerk, and one progress clerk; an engineer of plans and surveys, with twenty-two draftsmen, two estimators, two stenographers, two clerks, and two blue-print operators; a bridge engineer, consulting bridge engineer, two assistant bridge engineers, one stenographer, nine draftsmen and an inspector; a superintendent of construction, assistant engineer, assistant superintendent of construction with eight clerks and eight time-keepers, a general construction clerk, requisition clerk, payroll and invoice clerk, equipment clerk, and general clerk.

The management division has an executive manager with twenty-two classified clerks, a contract clerk with two assistant clerks, a filing and mailing clerk, with five assistant clerks and messengers, a purchasing agent, an assistant purchasing agent with seven clerks, chief stenographer, thirteen stenographers, ten typists, multigraph operator, duplicator operator, two multigraph operators with two assistant multigraph operators.

In the extension bureau there are a director of extension, a field assistant and three clerks. In the equipment bureau there are an equipment engineer, chief inspector, three inspectors, equipment clerk and two assistant equipment clerks, a foreman and an assistant foreman, a mechanic, a storekeeper and two assistant storekeepers, shipper, vulcanizer and watchman, five chauffeurs, six mechanics, three mechanic's helpers, two leaders, ten truck drivers and a watchman.

In the auditing and accounting department there are a comptroller, tabulating clerk, paymaster, an invoice clerk, payroll clerk, file clerk, expense account clerk, three assistant paymasters, five assistant clerks, a bookkeeper and an assistant bookkeeper, general clerk, six bookkeeping machine operators and three key punch operators.

In the maintenance department there are an assistant maintenance engineer, two principal maintenance inspectors, chauffeur, maintenance clerk, progress clerk, report clerk, and two general clerks.

In the automobile department there are a registrar, an assistant registrar, chief inspector, inspector's clerks, correspondence clerk, personal clerk and about 150 clerks, inspectors, examiners, verifiers, typists and proofreaders.

In each of the geographical districts of the construction and maintenance departments there are an engineer, clerks, stenographers, chauffeur, and from twenty to forty chiefs of squads, instrument men, rodsman, inspectors, assistant inspectors, clerks and chauffeurs.

The functions of the management division planning section are divided into seven principal classifications of purpose, i. e., management control chart, service, operation charts, records and reports chart with the different classifications indicated on the functional chart.

The functions of the authorization section of the management division are similarly divided into thirteen principal classifications: control chart, improvement of roads, reconstruction of roads, construction of bridges, operation chart, general repairs, surface treatment, resurfacing, map and route surveys, stores and equipment, purchase, mileage; with an elaborate system graphically shown on the functional chart.

Settlement of Soils Under Loads

Under this heading we gave last week a description of a machine proposed by the American Society of Civil Engineers for testing the settlement of different soils or of a given soil under applied loads. This should have been accompanied by an illustration which was inadvertently omitted and is given herewith and will serve to make the description more readily intelligible.

Further Tests of Bates Road

Result on the several sections of the third run of three thousand applications with 4,500 pounds on each rear wheel

The third traffic run made in testing the Bates experimental road (which was described in PUBLIC WORKS for February 5 and 19, 1921, and June 10, 1922) has been completed, as noted last week, the loads in this run being 4,500 pounds on each of the rear wheels of the trucks and 2,000 pounds

on each of the front wheels, the increase of weight over that of the second run being obtained by piling brick in the rear end of the bodies. This load corresponds to 450 pounds per inch of nominal width of the rear tire and 400 pounds per inch of the front tire.

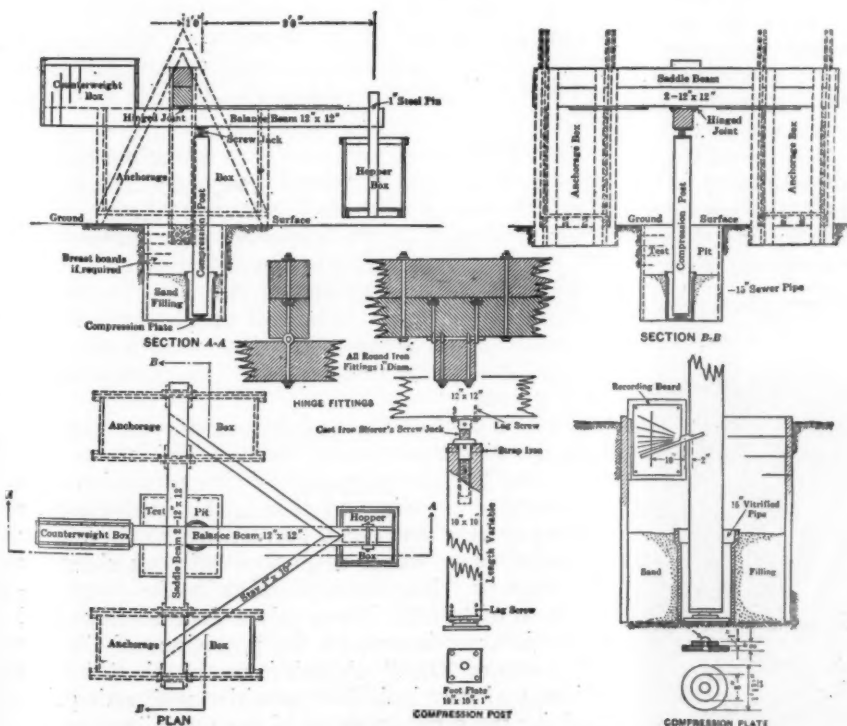
Exactly 2,000 applications of this load were given to the various sections in the daytime, the trucks travelling with the outside edge of the rear wheel $2\frac{1}{2}$ feet from the north side of the pavement and at the extreme edge of the south side. At the completion of the daytime run it was noticed that the first five sections (composed of bituminous-filled brick on macadam bases of various thicknesses) were broken up to such an extent that it was practically impossible for trucks to travel over them with the assigned speed of 12 miles per hour. For this reason a turn-around was constructed at Section 5 and no further traffic was imposed upon the first five sections, which will be left in their present condition for inspection by visitors.

Following the daytime run of 2,000 applications, 1,000 applications were made at night at the time when the most extreme curling action exists.

At the termination of this third run the pavement had been subjected to 1,000 daytime round trips with 2,500 pounds on each rear wheel, 627 daytime trips with 3,500 pounds on each rear wheel, 540 daytime trips with the outside edge of the rear wheel $2\frac{1}{2}$ feet from the edge of the pavement on one side instead of directly on the edge of the pavement as on the previous run, 1,000 daytime trips made like the previous one, but with one joint of each section of the pavement cut open, 1,033 night trips with loads applied as previously, 2,000 daytime trips with 4,500 pounds on each rear wheel, following the outside edge on the south side of the pavement and $2\frac{1}{2}$ feet from the edge on the north side, and finally 1,000 night trips applied in the same manner to all but the first five sections.

As a load of 4,500 pounds applied 6 inches from the corners of a 4-inch rigid pavement produces a tensile fibre stress of up to 650 pounds or approximately the full strength of the concrete if the corners are considered as unsupported cantilevers, it was natural that all 4-inch rigid pavements failed under this load; and as this stress was approximately 65% of the strength of the concrete in a 5-inch pavement, which is above what is considered as the critical percentage to produce fatigue in concrete, it was expected that these also would fail.

Up to date complete failures are reported of the first six sections, four of which failed after 1,000 loads in the second run and two after 1,500 loads



AMERICAN SOCIETY OF CIVIL ENGINEERS MACHINE FOR TESTING SETTLEMENT OF SOIL

in this run; Section 10 failed under the first increment of loading and Section 11 under the second increment. The first six sections were of bituminous-filled brick on macadam base. Of the asphaltic concrete pavement on macadam base, Sections 6 to 11, one had failed completely under the first load increment, another under the second, a third it was considered reached its maximum carrying capacity under the third loading, while such loading was considered in excess of the capacity of a fourth section. A few points of incipient failure appeared in the remaining two.

Of the asphaltic concrete on portland cement concrete base, there were few serious breaks, although "nature breaks" occurred in practically all of them. Most of them showed cracks in the curb and the adjacent edge at several points, although generally these did not appear to be serious. Four sections apparently reached their practical maximum capacity under the second increment of load. More or less cracking and corner breaks appeared in all the sections under the third increment.

Of seven sections of brick pavement constructed monolithic or semi-monolithic with a cement concrete base, one was considered a decisive failure under the first increment, two under the second increment, one under the third increment and three had not shown decisive breaks.

Of the 27 sections of cement concrete, 17 showed no apparent failures, although there has been more or less cracking in most of them. Of the remaining sections, three are considered to have failed decisively under the second increment and five under the third increment, while the others showed several cracks, but apparently no decisive failures as yet.

Under the third increment of load there were 26 decisive corner failures, of which 12 occurred during the day and 14 at night, 3 on the north side of the pavement and 23 on the south side. As more failures occurred during the thousand night applications than during the 2,000 daytime applications, this is taken to indicate almost conclusively that the curling action of the pavements makes the slabs more susceptible to failure at night than at any other time.

Until quite recently the subgrade has been very wet and its support of the pavement has not been such as would be considered desirable in most highway work. The accompanying photograph shows



VIEW OF BATES ROAD, SHOWING WATER IN SIDE DITCHES.

the side trenches standing full of water, and this was the condition until a very few weeks ago. This condition should be borne in mind in considering the effects of this test and comparing these results with those to be expected on other highways, the majority of which probably would be laid upon a much more solid subgrade.

Engineers' Plans for State Health Boards*

Regulations of the State Boards of New Hampshire, New Jersey, New Mexico and New York, with respect to the matter and form of plans and reports required to accompany applications for water and sewerage permits.

New Hampshire—"We have never established any special rules regarding details of procedure on the part of cities and towns and their consulting engineers. Our general requirement includes (a) notification of this office concerning the project, with general statement, either oral or written, as to what this includes.

(b) Inspection and investigation by an engineer detailed by us, together with such preliminary analysis as may seem necessary or desirable.

(c) Submission of copy of construction plans and specifications.

(d) Approval thereof by the board prior to actual construction.

"As a rule, in connection with the inauguration of a new water works our engineer makes a rough preliminary survey of the situation (which is apt to include several propositions) and general advice is given as a prelude to securing the services of a consultant."

New Jersey—Sewerage—The regulations are the same as those for Arkansas (see page 322 of the May 6th issue), with the following minor exceptions: For profiles, the horizontal scale suggested is 100 feet to 1 inch. Plans showing street lines, location of Y connections, etc., under each profile are not called for. An additional requirement is the statement of the distance of sewer outlet from shore and depth of water there at mean tide, if an ocean or large stream.

Water Supply—The regulations are the same as those for Arkansas, except for the additional requirement that "If for purposes of fire protection it is necessary to provide by-passes, by which partly treated or raw water can be turned into the mains; they shall have valves upon them of such character that they may be properly sealed by the State Department of Health. These valves shall not be opened except in accordance with the provisions of Chapter 317, Laws of 1912." Also it is not required that the estimate of cost include "quantities with unit prices used for the different parts of the work."

*Previous articles of this series have appeared in the issues of April 3 and 22, May 6, 13, 20, and June 10 and 17.

New Mexico—Application for permission to install, modify or alter a water supply plant must be accompanied by "complete plans and specifications and a statement containing a general description and history of the existing or proposed water supply or system, or proposed changes therein, showing the geographical location thereof with relation to the source of the water supply, and all the sanitary conditions surrounding and affecting said supply and the works, system and plant; such plans, specifications and general statement to be in such form and to cover such matters as the State Commissioner of Health shall prescribe." The requirements for sewerage systems are practically the same. For either, the holder of a permit may be required at any time to furnish a complete report on the condition and operation of the plant, made by "a competent person."

New York—*Water Supply*—Petition to the Water Power Commission must contain a brief description of the project and statement of the quality, quantity, water rates, fire protection, etc., to be given by the proposed works and the sufficiency thereof for present and future requirements. Also "a statement of the assets and liabilities of the petitioner and, if a municipality or civil division, the total assessed valuation of all taxable property within the limits thereof and the total indebtedness thereof for (1) water supply purposes and (2) all other purposes. Also a statement of the estimated annual expenditure on account of the proposed works and the expected revenue." There shall also be "a general statement of all available sources of supply, with particular reference to their relative availability and probable cost, sufficiency and suitability, and the reasons for the choice of the particular supply for which application is made;" statements as to safety of proposed works, the sanitary condition of water from the proposed source and measures to be taken to protect this water from contamination or to purify it; the effect of the project on the water supplies of other municipalities with particular reference to the present and future needs of the inhabitants thereof; and provision for payment of all legal damages.

The petition must be accompanied by a general map of the system; a section of the U. S. Geological Survey topographical map showing the territory and water shed affected; detailed maps, drawings and profiles of proposed structures; engineer's report; map of lands to be acquired or occupied; detailed estimate of cost; estimate of annual expenditures and income; proposed schedule of rates; specifications for proposed structures; analyses of water; list of those who may be affected by carrying out the plans. Also an abstract of proceedings authorizing the project, containing certified copies of all petitions, minutes, resolutions, etc., of all boards or other bodies required to authorize the construction of the work and the making of the petition, and of oaths of office, bonds, etc., or other evidence required to show the authority of those verifying the petition.

The general map shall be drawn to "a suitable scale" and show the general matters which we have previously detailed as specified by other states, including elevations of all controlling points, among them crests and depressions in main pipe lines or

aqueducts and locations of sewer outlets that may contaminate the supply. On the U. S. Geological Survey map shall be shown the location of the proposed works, outline of watershed and location of territory to be served. If the watershed is on more than four sheets of these maps, only those showing the proposed works are required.

Profiles "to suitable horizontal and vertical scales" shall show each principal pipe line or aqueduct and computed hydraulic gradients for ordinary and for fire draft.

Plans are required of proposed structures, giving sufficient detail to enable the commission to determine the adequacy, suitability and safety of the designs. Estimates of cost shall give quantities and unit prices in sufficient detail to enable them to be studied and checked, and include cost of land.

A land taking map shall show lands to be acquired or occupied and rights of way, indicating buildings, roads, streams, topography and other important features. Map of reservoir site shall show surface contours in sufficient detail to permit capacity of reservoir to be determined accurately.

(To be continued)

American Construction Council

In our issue of June 3, we published an invitation addressed to all interested in the construction industry to attend a meeting in Washington with a view to organizing "The American Construction Council." This meeting was attended by about 170 representatives of the various groups concerned with construction and the meeting was opened by Secretary Hoover. Several addresses were made, all stressing the need of some agency to remove from the construction industry the many undesirable conditions attached to it.

An executive board was elected which will select the officers. The following were recommended by the conference: (1) The formation of a code of ethics acceptable to the whole industry and to the public; (2) Gathering of adequate statistics from all sources; (3) Reduction of the national shortage of building trade mechanics and the establishment of the necessary apprenticeship system; (4) Co-operation in establishing uniform building codes throughout the country; (5) Co-operation with railways in expediting the revision of existing freight rates on construction materials; (6) The establishing and strengthening of local organizations throughout the country to bring about the co-operation of all elements in conformity with the principles of the Council; (7) The investigation of the evils of seasonal employment and migration of labor; (8) The encouragement of local building shows; (9) Simplification and the elimination of waste; (10) Education of the public as to the desirability of a better distribution of its construction and maintenance requirements; (11) Promotion of health and safety for workmen and the reduction of loss of life; (12) The reduction of waste of construction materials from preventable fires; (13) The study of old buildings in order to establish superior methods of construction; (14) The education of the public as to the necessity and economy of properly maintaining structures.

Constructing Arch Ribs of Springfield Bridge

Thirty-five ribs containing 6,000 cu. yds. of concrete and 1,800 tons of structural steel and supporting the floor of the seven-span bridge across the Connecticut river, erected with a minimum amount of falsework, using structural steel reinforcement to support forms and concrete.

The bridge now being built across the Connecticut river from Springfield to West Springfield was described in the issue of PUBLIC WORKS for May 20th. As stated therein, it has seven spans varying from 176 feet to 110 feet in length. Each span has five reinforced concrete, parabolic, hinged arch ribs. Three of the arch ribs are grouped under the car tracks at the center of the roadway and the others are at the side lines. Each rib is reinforced by a pair of steel latticed girders with parallel chords, the two girders being connected by transverse bracing to form self-supporting arch ribs. Each rib is provided with permanent hinges at the haunches and a temporary hinge at the crown and acted during erection as a three-hinge arch, after which it was riveted together at the crown, thus transforming it into a two-hinge arch. The steel ribs support the forms and the rib concrete during construction and eliminate the expense, obstruction and delay that would be involved by the use of the ordinary river falsework, including trestle bents and arch centers. The span-drel walls and floor columns are supported directly by the ribs.

The structural steel for the arch ribs was fabricated at the shops of the McClintic Marshall Co. and each rib was shipped to the site in four sections which were field riveted either before or after erection to form a half arch. These quarter ribs varied

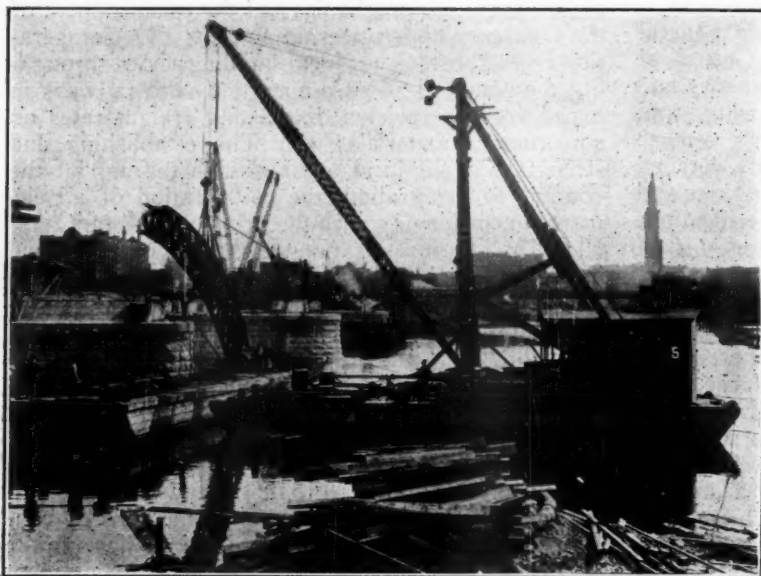
in weight from about 17½ tons in Span V to 6½ tons in Span I. In the shorter spans, the quarter sections were riveted to form half sections before erection.

The seventy cast-steel pedestals resting upon the granite skewbacks and supporting the haunch hinges of the ribs varied in size, the largest being 9 feet 2 inches high, with base 5 feet by 6 feet 2 inches and weighing about 4½ tons. These pedestals were set in position on the masonry by a lighter, being temporarily held in position by two 1½-inch bolts parallel to the face of the skewback and passing through transverse timbers above them, and were adjusted to a clearance of about ¾-inch from the dressed surface of the granite by means of four set screws (in the largest pedestal ¾ inches diameter), threaded through the base of the pedestal and bearing on small plates on the surface of the stone. During the adjustment of the rib, the pedestal rested on a set of shims in a vertical plane through its center, forming a temporary hinge at right angles to the permanent hinge.

ERECTION AND ADJUSTMENT OF THE STEEL ARCH RIBS

The quarter ribs were delivered by a scow, in the case of the shorter spans being riveted to form half ribs on the deck of the scow, and were raised to position on temporary pile bent falsework by the derrick on the lighter. They were set in position with the lower end bearing on the hinge pin at the pedestal and the upper end resting on wedges at the crown on top of the falsework. The necessary transverse struts were put in to secure stability.

Following the erection of the five steel ribs of any span, they were adjusted to position, the temporary falsework removed, and the weight at the crown transferred from the wedges to self-lowering jacks by means of which, together with the adjustment screws in the pedestals at the haunches, the crown pin was adjusted to the proper elevation, allowance being made for settlement and deflection. Owing to the care with which the ribs were set in position, but slight use was made of the adjustment screws, the adjustment being made with the rib bearing on the shims, and the screws set up later to take

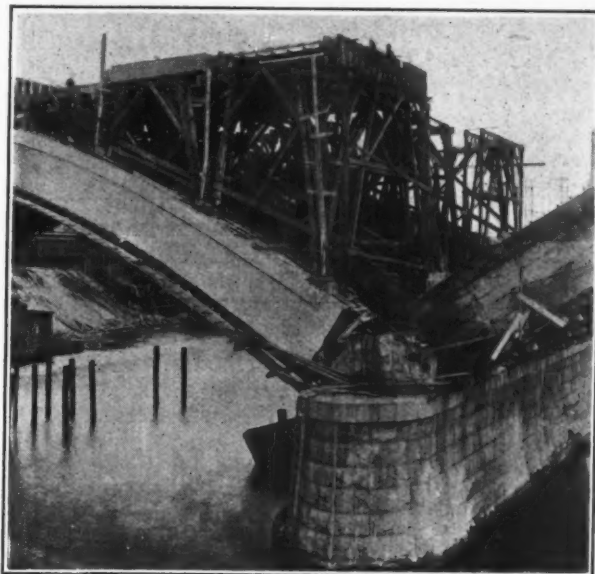


ERECTING END SECTION OF ARCH RIB REINFORCEMENT

a slight strain and to permit the pouring of melted antimonial lead (type metal) between the pedestal and the skewback, thus providing, after solidification, a uniform bearing surface for the pedestal. The large adjustment screws were later taken out and their holes filled with cement grout. Particular care was taken to make the final adjustments of the ribs when the effect of the sun was slight, either on a cloudy day or early in the morning. The deflections of the ribs under the greater part of the total dead load conforms closely to the calculations, the total being about $1\frac{1}{2}$ inches.

The maximum unit erection stress in the arch rib steel was computed to be 9,820 pounds and the maximum unit stress in them under the dead and live loads of the finished bridge was computed to be 16,390 pounds.

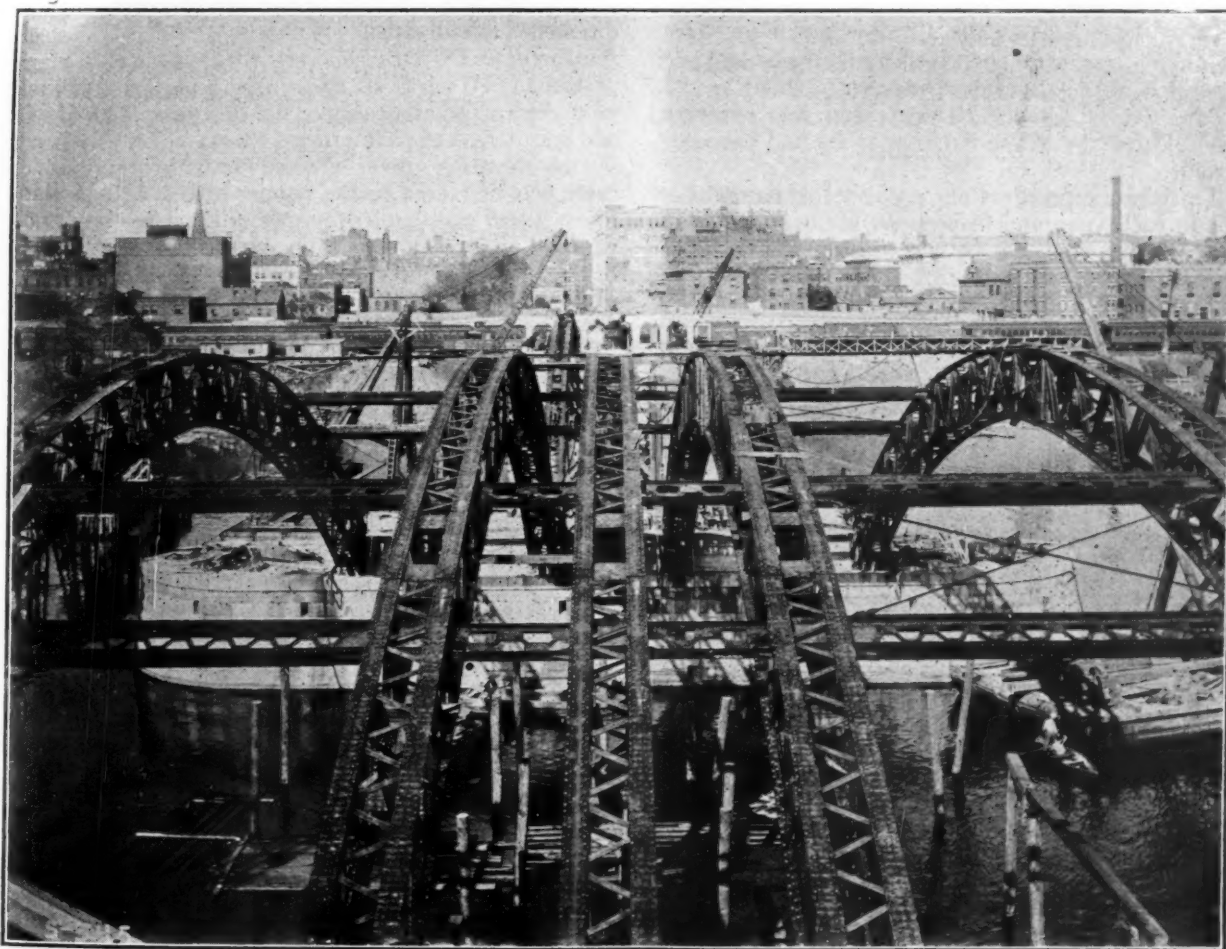
The use of structural steel reinforcement as a support for the rib during erection has not only the advantage of minimizing the amount of falsework in the river, but results in securing an initial compression in the reinforcement, thereby increasing the compression in the steel under final conditions. This results in considerable economy of reinforcement over a design using rods only, as in the latter case the maximum compression in the steel could only be "n" times the compressive stress in the concrete or about 7,200 pounds per square inch. The maximum compressive stress in the concrete is 593 pounds per square inch.



FLOOR FORMS SUPPORTED FROM ARCH RIBS.

SEQUENCE OF CONCRETING ARCH RIBS

In the arch ribs, the concrete was placed alternately on each side from the haunches to the crown and in no case did the concrete length of the two halves at any time differ by more than 10 feet. The pouring of each rib was a continuous operation.



REINFORCEMENT TRUSSES ERECTED AND READY TO SUPPORT FORMS FOR CONCRETE RIBS.



LOCOMOTIVE HAULING CONCRETE CARS ON SERVICE TRACK.

As the bridge was designed to permit the removal of the channel span and the substitution thereof of a draw span, the channel piers had to be designed to carry the entire thrust of the arches of the adjacent spans. Because the smaller piers were designed to withstand only a limited amount of unbalanced thrust and in order to insure that the thrust on the channel piers before the channel span was constructed might be similar in direction and as nearly as possible equal in amount to that which would obtain if a draw span were substituted, the concreting was done under certain limitations, viz:

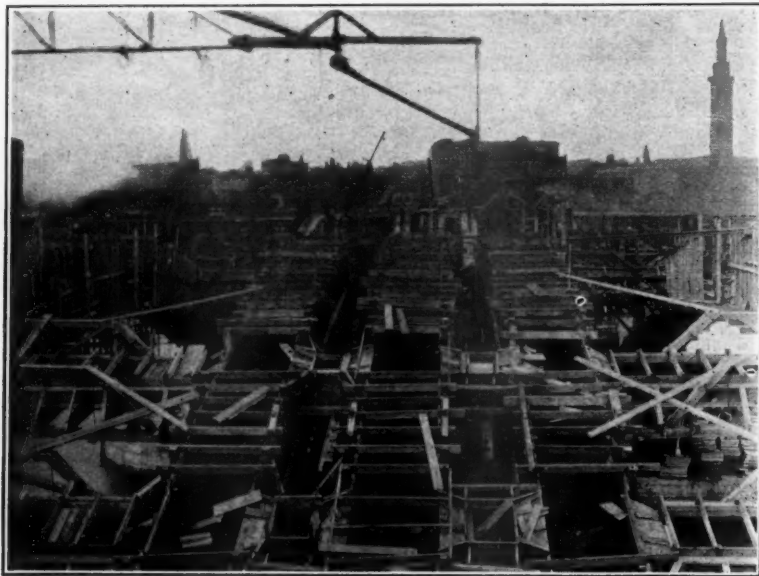
(a) In any span no rib was concreted until the steel for the rib in line with said rib had been erected in each adjacent span. (Except channel span.)

(b) In any span, the number of ribs concreted was not allowed to exceed, by more than three, the number previously concreted in either adjacent span, except that all ribs in the spans flanking the channel were concreted before any ribs were concreted in the channel span.

(c) No spandrel walls, columns or column bracing in any span were concreted until all ribs had been concreted in the adjacent channelward span.

(d) No rib of the channel span was concreted until all the ribs in the flanking spans had been concreted.

To secure approximately equal deformation of all ribs in each span and to prevent undue strain in the wind bracing between the ribs, the concreting of the superstructure was extended at all times across the full width of the bridge normal to the bridge axis.



FORMS FOR ARCH RIBS ENCLOSING AND SUPPORTED BY REINFORCEMENT TRUSSES.

PLACING CONCRETE

For the sake of appearance and because of the fact that the live load was relatively small on the face ribs, the hinges at the crown in these ribs were eliminated by riveting the half ribs together before any concrete was placed, thus forming these ribs into a two-hinge arch. The three interior ribs were transformed into two-hinge arches after the deck of the span had been concreted, a small section of the rib and a small piece of the deck being left out at the crown to permit of the necessary riveting after the deck had been poured. The form bottoms were attached to the bottom chords of the steel ribs by bolts which were later backed out; these bottoms carried the sides. All form work was done at the contractor's material yard about one-half mile up the river from the bridge, and was brought to the site on scows from the decks of which it was hauled into position by block and tackle. The average time required for concreting one arch rib was seven hours and the shortest time was five hours. Following the concreting of the major portion of the arch rib, which was carried only down to the haunch hinge pin, the block of concrete around the arch pedestal was cast, the joint between the two being made permanent by the use of roofing felt cemented together with asphalt. The outer surfaces of the face ribs were rubbed to provide a contrast to the surfaces of the spandrel walls above, which were given a rough pointed surface.

The ribs contained in all about 6,000 cubic yards of concrete and 196 tons of rod reinforcement in addition to the more than 1,800 tons of structural steel reinforcement. This concrete which formed a part of the 54,000 yards of the whole bridge was mixed in a central plant described in the June 17th issue and was delivered to the forms through chutes served by an elevating tower erected on a lighter. Concrete was delivered to the hopper at the base of this tower from cars hauled by gasoline locomotives and running on a track on a timber trestle paralleling the bridge. The lighter carrying the elevating tower could easily be moved along the trestle to form a flexible connection between it and the work.

The concrete of the arch ribs was commenced June 13, 1921, and except for the concreting at the crown of the center ribs of two spans, was finished in November. The floor slabs were also practically completed before work was suspended for winter.

Mailin-Belton Bridge Wreck

A flood in the Brazos river, Texas, washed out a portion of the west approach of a highway bridge which was being repaired with timber cribbing on May 6th, when the west abutment collapsed from undermining and wrecked a 300-foot truss span, drowning eight of the twenty people standing on it at that time. The bridge was built several years ago before the organization of the State Highway Department.

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Linear Units for Measuring Street Cleaning

The article published by us last week in which the engineer of the San Francisco Bureau of Governmental Research advocated the use of linear rather than areal units for measuring performance of the several street cleaning methods is worthy of careful consideration, whether or not it is finally accepted. It would certainly seem that some unit is needed that will be generally accepted and will permit comparison between the street cleaning work done by different cities and using different methods and appliances. Certainly no such comparison can be made now that has any definite meaning or serves any useful purpose.

The linear unit has already been used to some extent. Two instances were cited by Mr. Witkin in his article. Fred Maag, of Cincinnati, uses a unit of 400 linear feet (presumably the average distance between intersecting streets) in measuring gutter cleaning. As Mr. Witkin has pointed out, most of the street dirt accumulates along the gutter, so that white wing cleaning is largely confined to cleaning the gutters—that is, to linear performance.

Undoubtedly there will be found difficulties and inconsistencies in this method also, but some at least of these can be avoided by adopting the suggestion

of the author that both areal and linear units be used. The latter can be used in comparing the cost of operating two machines for doing the same work, even though operating on streets of different widths. But even in this case the area may enter in; as for example, if two sweeping machines are being compared that have brooms of different lengths and therefore cover areas of different width at each trip, the proper comparison of cost would seem to be on the basis of area cleaned rather than mere linear distance traveled, for the latter would unduly favor the narrower machine.

Again, even though most of the dirt may be blown into the gutters (and that condition is not so nearly approached in New York and other eastern cities as it seems to be in San Francisco), it is necessary in most cities, especially with old stone block or other rough pavement, for the sweeping machines to cover the entire area of the streets, usually in four or more trips; while a flushing machine may cover the entire area in two trips, but should not therefore be credited with performing only a half or a third as much work as the sweeper.

Again, even though most of the dirt is swept up in the gutters only, the width of the street affects the amount of dirt that collects there, especially perhaps in its effect on the amount of traffic that uses the street; and the labor of sweeping the dirt into piles and of removing it in wagons are both affected by the amount of dirt handled as well as by the distance traveled.

For these and other reasons it seems to us probable that area as well as length of street covered will need to be considered in any acceptable plan for comparing street cleaning work done.

Special Features of Arch Bridge Construction

The most successful engineering practice requires close co-ordination between the most efficient type and details of design and the safest, most rapid and economical plans and methods of its construction. The latter are largely dependent on local conditions which, in large structures, usually present new problems and often are important factors in determining portions of the design. The numberless variations of dimensions, proportions and requirements for the design, and the wide choice of apparatus and methods of construction provide for such a vast number of combinations that no two large jobs can ever be duplicated. The different elements of each job should be most carefully selected, matched, and adapted to each other to determine the smallest cost and the most advantages that can be secured by the large amount of patient skill and experience requisite for handling such undertakings.

Although there are often opportunities for ingenious and daring innovations, they are usually justified only when unavoidable, and the best results are undoubtedly obtained by wise selection of proved standards both of methods and equipment and their conservative development and modification to suit varying conditions.

Such a policy adopted for the \$4,000,000 concrete

arch bridge at Springfield made for conservative treatment conforming to advanced practice and presenting new and interesting features that are valuable precedents for adoption, modification or suggestion in many kinds of construction work, even that which is not strictly similar to the Springfield Bridge.

Outstanding features of the work described in this issue and in previous articles, are the consideration given to the artistic and monumental features of the structure that derived beauty and symmetry from its mass, proportions and simple details with little extra expense; the co-ordination of finished members with the practical resources for their construction, the physical requirements suited to available resources, and the installation and operation of the construction plant with economic regard to local conditions and efficient operation.

Hand labor was eliminated and mechanical operations simplified by ample storage and by the handling of materials in continuous operation at central points and by powerful apparatus; the mixing and distribution of concrete by independent, continuous operations involving track service to hoisting equipment that was easily floated from place to place and made a flexible system of great capacity and easily controlled; the installation of the large amount of supplementary floating plant that could be cheaply and rapidly shifted and was adapted to the shallow water conditions; the preliminary development of the potential strength of the arch reinforcement to support the main spans themselves during construction and eliminate falsework; the accurate adjustment of the arch rib, its perfect control by dressing the two backs at the site and casting the pedestal bearings under working stress; a transformation of three-hinge construction arches to two-hinge service arches; the equalization of steel and concrete stresses in the ribs; and the elimination of temporary arch centers, their expense, difficulty of shifting and uncertainty of movement together with the impact and settlement of the permanent structure that may occur when centering is removed. These were all essential features carefully planned and satisfactorily handled in a manner promoting safety, rapidity and economy of construction and affording valuable information for the execution of subsequent work.

Removing Taste from Gas Plant Liquors

The seventh annual report of the Milwaukee Sewerage Commission contains some interesting information by Wm. R. Copeland, the chief chemist, concerning experiments made by the commission on the removal of tastes by activated sludge treatment.

Tests of the ability of the activated sludge process of sewage treatment to absorb and remove tastes from Milwaukee sewage caused by A.C. (ammonia condensation) liquor from coke and gas plants, showed that the effluent from the final settling basins contained little taste of consequence; and that such tastes as were noted could not be detected when this effluent was diluted with an equal volume of lake water. According to figures available, the volume of A.C. liquor in Milwaukee sewage will not exceed 1 per cent. of the sewage flow even if the coke gas works are doubled in capacity. As a result of these tests, the

following recommendations were made: (1) "The activated sludge process of sewage purification will remove the taste of phenol from sewage which contains as much as 2 per cent. by volume of A. C. liquor; (2) the presence of 2 per cent. by volume of A. C. liquor in the sewage does not decrease the biological efficiency of the activated sludge in removing the suspended organic matter; (3) the number of bacteria present in the plant effluent is considerably greater when sewage contains 2 per cent. or more of A.C. liquor; (4) the A.C. liquor does not injure the quality of the sludge for pressing when that liquor is present in the raw sewage up to a volume equal to 2 per cent. of the volume of the sewage; (5) there are strong reasons for believing that the activated sludge process can handle Milwaukee City sewage and produce an effluent meeting the standard set by the commission when that sewage contains more than 2 per cent. by volume of A.C. liquor."

Attention is also called to the fact that the A.C. liquor treated in these experiments did not contain any oil of any importance, but that wastes from gas works and other industries do contain oil which must be kept out of the city sewage or else it will destroy the action of the activated sludge process. It is recommended that a second series of tests be made in winter to make sure that the activated sludge will absorb and remove the taste of carbolic acid in cold water.

Denitrification by Bacteria

Abstract of report by K. Scheringa on work of the Netherlands Central Laboratory. In making water analyses, nitrogen determinations should be made as promptly as possible.

Although the present trend of opinion among sanitarians is from, rather than towards, the significance of the forms of nitrogen, it is believed that the summary presented by Scheringa of the present state of our knowledge of denitrification is worth quoting at length. A few experiments of his own are added.

Denitrification is an oxidation of organic matter at the expense of nitrate or nitrite. It is a form of organic purification. The fate of the nitrogen is very variable. Lafar distinguishes: (1) reduction of nitrate to nitrite and to ammonium; (2) reduction of nitrate and nitrite to N_2O and NO ; (3) reduction of nitrate and nitrite with liberation of elementary nitrogen. (This is denitrification proper, in the narrower sense of the word); (4) conversion of nitrate nitrogen into organic compounds (nitrogen assimilation); and (5) liberation of nitrogen by decay of organic compounds. Many conflicting data on these processes are to be found in the literature. In part this is due to the very varying conditions in nature and to the fact that many organisms will behave very differently according to the environment.

Errors in estimating the extent of denitrification may easily occur in the following ways: (1) by as-

suming all the CO_2 -free gas to be nitrogen, whereas hydrocarbons and hydrogen will usually be present also; (2) by the fact that air, especially that of laboratories, at times has much nitrate, nitrite, and ammonium, which are greedily absorbed by colloidal substances (soil, manure); (3) by the fact that nitrogen-assimilating bacteria are present in soil, and may, under certain conditions, fix appreciable quantities of atmospheric nitrogen; (4) because of the ready solubility of nitrous oxide in water, as a result of which its formation and solution will cause a disappearance of assimilable nitrogen without apparent liberation of gas; and (5) in view of the fact that the disappearance of the diphenylamine reaction cannot safely be assumed to signify that denitrification is complete—there may still be present organic ammonium compounds unacted upon.

Review of Literature on Denitrification. Lafar has collected a number of facts from literature, the chief of which are: (1) Nitrate reduction is a very usual property of bacteria; (2) the same organisms may, not improbably, with different pabulum, form N_2O and NO ; (3) evolution of oxides of nitrogen has been observed in nitrate-fermentation of molasses; in "Tabakssaus"; in nitrate-containing urine; (4) Tacke has observed the simultaneous formation of free nitrogen and oxides of nitrogen; (5) Gayon and Dupetit show the effect of altering pabulum—in the presence of asparagine, NO is formed; otherwise, free nitrogen; (6) for denitrification proper, it is essential that the oxygen concentration be very low, and a sufficient amount of oxidisable organic matter be present; (7) physiologically, the process is the supplying of the respirational oxygen-requirement of the bacteria in oxygen-poor environment; and (8) in agriculture, loss of fertility by this process is not to be apprehended: for nitrification will only set in when most of the organic matter has been oxidised and air is abundantly present—conditions under which denitrification will not occur.

More recent workers are referred to, namely: (1) Van Iterson—who concludes that denitrification may occur even when the concentration of organic matter is extremely low. This may be of significance for water analysis; (2) Lohnis—who finds in nitrate-bouillon that inoculation with much soil retards the denitrification. Compare the retarding effect of clay on chemical denitrification, noted by Scheringa; also of significance for agriculture (Public Health Engineering Abstracts—Water Supplies, p. 8); (3) Stoklasa once more showed that in agricultural soil, with known denitrifiers present, there is yet in most cases no appreciable loss of nitrogen from nitrate fertilizer; (4) Beyerinck and Minkman—who report a number of gas analyses. It appears that with increased nitrate concentration, the proportion of N_2O increases; (5) Suzuki—who also finds N_2O formation—especially when growth is rapid; (6) Koch and Petit—who find that in moderately damp soil the nitrogen is assimilated; while in very damp soil, or in liquids, loss of nitrogen may occur; (7) Brown—who, working with four different pure cultures, found all to develop best in weakly alkaline media. Preliminary addition of nitrite did not affect the process. Heavy additions favored it; (8) Van Caren—who confirms Koch and Petit's results; and (9) Oelsner—who finds denitrification in soil of 40% water-content without addition of carbon com-

pound. Denitrification results from air exclusion. For soil fertility therefore, limited moisture-content and high porosity are desirable.

Bacterial Denitrification in Water. Scheringa for his own experiments made use of *Bacillus Pyocyaneus*, cultures of which were available; these developed rapidly in Giltay medium, and reduced all the nitrate to nitrogen. Pure cultures isolated from soil and from horse manure by Scheringa were less active and unsatisfactory.

When Utrecht tap water with nitrate added is inoculated with *B. Pyocyaneus* with a little glucose, free growth at once ensues. No free nitrogen is formed, but abundant nitrate. This observation led to numerous experiments to determine which constituent of the Giltay fluid was essential for denitrification proper. It was found that: (1) simply adding phosphate to the glucose-nitrate mixture brings about rapid denitrification. Citrate acts similarly; (2) the further addition of magnesium salt to the glucose-nitrate-phosphate mixture caused a very great retardation; but mere traces of iron sufficed to inhibit this retarding effect; and (3) if only magnesium, or calcium, or iron-salt is added to the glucose-nitrate mixture the process, even after the lapse of several days, does not go beyond the nitrate stage. Van Iterson also found the course of the reaction to vary greatly with the conditions: in bouillon with 0.1% KNO_3 , there was strong evolution of nitrogen—while, with 4% KNO_3 , nitrate formation occurred.

A series of natural waters, with and without added nitrate was then tested as follows: the water was kept for two days at 35° in completely full 100 c.c. bottles—one bottle in each case with *B. Pyocyaneus* added, and one without. The results obtained were very variable: (1) in no case did *B. Pyocyaneus* denitrify strongly; in some instances it actually inhibited the denitrifiers naturally present; (2) Water with low organic content showed little change; and (3) with Vecht water, small nitrate additions led to the formation of ammonium; with larger additions, ammonium disappearance was the principal change.

From Scheringa's experiments, it can be concluded: (1) *B. Pyocyaneus* in natural water is a nitrite-former rather than a denitrifier; (2) loss of nitrogen may be expected when natural water, high in organic content is stored under warm conditions with exclusion of air.

Recapitulation: The various forms of combined nitrogen in solution in water are readily decomposed. When air is excluded and oxidisable organic matter present, many kinds of bacteria have the power to draw on nitrate or nitrite oxygen for their respirational requirement. The conditions for, and the course of, the various reactions ensuing are most variable, and are as yet but little understood. As end-products have been identified: nitrite, nitric oxide, nitrous oxide, free nitrogen, ammonium. Ammonium may also disappear. For the purposes of an ordinary water analysis, the free nitrogen and the lower oxides thus formed may be regarded as lost. Hence, when a determination of the various forms of combined nitrogen is desired, it should be proceeded with at the earliest opportunity; when delay is unavoidable, bacterial activity should be restricted to the utmost by cold storage.

(Abstract by Frank Hannan for the U. S. Bureau of Public Health "Engineering Abstracts")

City	Prop.	Owner	Option of	2 1/2 ft.	24 in.	from at imp.
Timin	P.	Seattle	M.	none	...	and elect.
Wadsworth	M.	Spokane	M.	...	...	...
Warren	M.	West Virginia	M.	...	...	...
Willoughby	M.	Charleston	P.	...	30-36 in.	none
Youngtown	M.	...	...	...	...	...
Zanesville	M.	...	...	...	...	...
Oklahoma	M.	...	...	...	...	...
Cleveland	M.	...	...	...	...	...
Collinsville	M.	...	...	...	...	...
Hartshorne	M.	...	...	...	...	...
Holdenville	M.	...	...	...	...	...
Newkirk	M.	...	...	...	...	...
Sand Springs	P.	...	...	...	...	...
Pennsylvania	M.	...	...	...	...	...
Allentown	M.	...	...	...	...	...
Bloomburg	M.	...	...	...	...	...
Catasauqua	M.	...	...	...	...	...
Chambersburg	P.	...	...	...	...	...
Chester	M.	...	...	...	...	...
Coatesville	P.	...	...	...	...	...
Connellsville	P.	...	...	...	...	...
Coudersport	P.	...	...	...	...	...
Corry	P.	...	...	...	...	...
Downingtown	M.	...	...	...	...	...
Duquesne	M.	...	...	...	...	...
Elwood	P.	...	...	...	...	...
Emous	M.	...	...	...	...	...
Hamburg	P.	...	...	...	...	...
Homesdale	P.	...	...	...	...	...
Huntingdon	M.	...	...	...	...	...
Indiana	P.	...	...	...	...	...
Jenkintown	P.	...	...	...	...	...
Jersey Shore	P.	...	...	...	...	...
Junata	M.	...	...	...	...	...
McDonald	P.	...	...	...	...	...
McKees Rocks	P.	...	...	...	...	...
Meriden	P.	...	...	...	...	...
Media	P.	...	...	...	...	...
Meyersdale	P.	...	...	...	...	...
Millersburg	P.	...	...	...	...	...
North Braddock	P.	...	...	...	...	...
North East	P.	...	...	...	...	...
Reading	M.	...	...	...	...	...
Red Lion	P.	...	...	...	...	...
Reynoldsville	M.	...	...	...	...	...
Royersford	P.	...	...	...	...	...
Snyder	P.	...	...	...	...	...
Sharpsville	M.	...	...	...	...	...
Shkesville	M.	...	...	...	...	...
Tamaqua	M.	...	...	...	...	...
Tyrone	P.	...	...	...	...	...
Uniontown	P.	...	...	...	...	...
Warren	P.	...	...	...	...	...
Wellsboro	P.	...	...	...	...	...
Wilkinsburg	P.	...	...	...	...	...
Williamstown	P.	...	...	...	...	...
York	P.	...	...	...	...	...
Rhode Island	M.	...	...	...	...	...
Woonsocket	M.	...	...	...	...	...
South Carolina	P.	...	...	...	...	...
Anderson	M.	...	...	...	...	...
Batesburg	M.	...	...	...	...	...
Washington	M.	...	...	...	...	...
Seattle	M.	...	...	...	...	...
Spokane	M.	...	...	...	...	...
West Virginia	M.	...	...	...	...	...
Charleston	P.	...	...	...	...	...
Moundsville	P.	...	...	...	...	...
Salem	M.	...	...	...	...	...
Slaterville	P.	...	...	...	...	...
Welch	P.	...	...	...	...	...
Wisconsin	M.	...	...	...	...	...
Appleton	M.	...	...	...	...	...
Clintonville	M.	...	...	...	...	...
Delavan	M.	...	...	...	...	...
Fond du Lac	M.	...	...	...	...	...
Fort Atkinson	M.	...	...	...	...	...
Green Bay	M.	...	...	...	...	...
Hartford	M.	...	...	...	...	...
Janesville	M.	...	...	...	...	...
Jefferson	M.	...	...	...	...	...
Kaukauna	M.	...	...	...	...	...
Lake Geneva	M.	...	...	...	...	...
Madison	M.	...	...	...	...	...
Manitowoc	M.	...	...	...	...	...
Marquette	P.	...	...	...	...	...
Menasha	M.	...	...	...	...	...
Milwaukee	M.	...	...	...	...	...
Mineral Point	M.	...	...	...	...	...
Monroe	M.	...	...	...	...	...
Neenah	M.	...	...	...	...	...
New London	M.	...	...	...	...	...
Park Falls	M.	...	...	...	...	...
Platteville	M.	...	...	...	...	...
Plymouth	M.	...	...	...	...	...
Racine	M.	...	...	...	...	...
Reedsburg	M.	...	...	...	...	...
Rice Lake	M.	...	...	...	...	...
Richland Center	M.	...	...	...	...	...
Shawano	M.	...	...	...	...	...
So. Milwaukee	M.	...	...	...	...	...
Sparta	M.	...	...	...	...	...
Stevens Point	M.	...	...	...	...	...
Sturgeon Bay	P.	...	...	...	...	...
Superior	P.	...	...	...	...	...
Tomah	M.	...	...	...	...	...
Tomahawk	M.	...	...	...	...	...
Viroqua	M.	...	...	...	...	...
Watertown	M.	...	...	...	...	...
Warwatosa	M.	...	...	...	...	...
Wisconsin	M.	...	...	...	...	...
Chevyenne	M.	...	...	...	...	...
Evanston	M.	...	...	...	...	...
Rawlins	M.	...	...	...	...	...

Asphalt Macadam In Kansas City

By Fred Gabelman*

Applied to old water-bound macadam with crown reduced to 6 inches; also over wooden culverts

On the old waterbound macadam pavements of the boulevard system of Kansas City, Missouri, the Board of Park Commissioners adopted the standard crown of 12 inches for the standard width of 40 feet for roadways. With the waterbound pavements it was necessary to have a considerable crown to get the water off the pavement and into the gutter as soon as possible, to prevent washing and raveling of the pavement, especially on steep grades which are common on the hills of Kansas City. But with the advent of the rubber-tired automobile, the oiled surface and bituminous binder, a flatter crown was soon found necessary to relieve the slippery condition during wet weather. Moreover, the surface being waterproofed, there was not the need of so much crown. A crown of 10 inches was first adopted, but later a crown of 6 to 9 inches, dependent on the

$1\frac{1}{4}$ to $2\frac{1}{2}$ inches. After the stone had been evenly spread to the required depth and shaped to the proper cross section it was dry rolled until it was compacted and firmly keyed together, the surface being left open and porous to permit the penetration of the bituminous binder, all unevenness or depression corrected and rerolled until the surface was true to grade and section of the finished pavement. This course was 3 inches in depth over the central portion, but over the outer edges and gutters was from 5 to 7 inches in depth.

On this surface, when it was thoroughly dry and free from dust, an application of about $1\frac{3}{4}$ gallons of asphaltic cement was uniformly and evenly spread by hand, using fan-shaped lipped cans. The temperature of the asphalt at the time of application was from 300 to 350 degrees F. Immediately after the application of asphalt a layer of clean, dry limestone grit, ranging in size from $\frac{1}{4}$ to $\frac{3}{4}$ of an inch, was spread in sufficient quantity to completely fill all the voids and then thoroughly rolled until it was compacted and ceased to creep or weave under the action of the roller, and the surface was even and true to grade and section.

The seal coat of $\frac{2}{3}$ of a gallon of asphalt per square yard, with a light dressing of grit, that is used in standard construction of the bituminous macadam by the penetration method to give a smooth finish, was left off in this work, so as to leave the surface without a smooth finish and therefore not



CROSS-SECTION OF ROADWAY ON BROADWAY HILL, KANSAS CITY

grade, was decided upon for 40-foot roadways, with corresponding ratio for crowns on 50- and 60-foot roadways.

One of the most serious of the sharp crowns on a steep grade was corrected about eighteen months ago on Broadway Hill in Penn Valley Park. This roadway was of the standard 40-foot type, including the 30-inch concrete park gutter on each side, and with the standard 12-inch crown for the old water-bound macadam. The gradient was 7 per cent. This road is one of the main arteries for passenger traffic to the Country Club and southwestern residential sections of the city. With the increase of swiftly moving traffic the slippery condition of the oiled surface of the pavement on this hill was becoming more and more serious during wet weather and accidents were becoming of frequent occurrence.

To relieve this condition, the Board of Park Commissioners during the summer of 1920 resurfaced the pavement with bituminous macadam and flattened the crown to 6 inches. A concrete curb 6 x 20 inches was constructed just outside of the old park gutter, leaving the gutter in place. The grade of the curb was made the same as that at the center of the old pavement. The surface of the central portion of the pavement was scarified and excavated to a depth of about 3 inches at the center, tapering out near the quarter points, and the material removed.

Over the old gutter and macadam base was spread a layer of crushed limestone ranging in size from

so slippery. The asphalt used in this work was Texaco No. 96.

The result of resurfacing this roadway and reducing the crown to 6 inches has been that no accident has occurred since the work was completed, about eighteen months ago. The pavement is in splendid condition.

LAYING ASPHALT MACADAM ON WOODEN CULVERTS

Another bit of work of some interest is the construction of a bituminous macadam wearing surface across three or four wooden culverts in Brookside Boulevard and at The Paseo and Meyer Boulevard. These culverts are from eight to sixteen feet in length and of the same width as the roadway. A 3-inch oak floor is laid on a solid culvert frame with a 4 x 4 oak piece bolted on each side on the curb line to hold the pavement. A light coat of asphalt (the same grade as used on Broadway Hill, described above) is spread over the floor to waterproof and to preserve it. Then the standard bituminous macadam wearing course is constructed on this floor the same as on the macadam base, the depth being increased to four inches instead of the three-inch course laid on the macadam base. This carries the same pavement surface across the culvert that is on the rest of the pavement. In riding over the culvert in an automobile no jar is felt, and you do not know that you are going over a culvert with its usual jars and jolts. These culverts have been in use for from three to five years and have given splendid results with no maintenance.

*Engineer, Board of Park Commissioners, Kansas City, Missouri.

Recent Legal Decisions

PUBLIC WORKS CONTRACTOR WHOSE WORK HAS BEEN ACCEPTED AND WHO IS NO LONGER IN CONTROL OF SIDEWALK NOT LIABLE FOR ITS CONDITION

Where a contractor for the construction of a tunnel for a city was bound to keep the sidewalk during the progress of the work in the same condition it was in when the work was begun, and was responsible to the city during this time for any accident arising for the unsafe condition of the sidewalk, and was to keep it safe for travel for six months after completion of the work, it was held, *Cunningham v. T. A. Gillespie Co.*, Massachusetts Supreme Court, 135 N. E. 105, that the contractor was not liable for injuries caused by a flagstone being one-half inch higher than the rest of the pavement, the accident happening four months after completion of the work and its acceptance; the work being no longer under the contractor's supervision and the care of the street above the tunnel being in the exclusive control of the city, upon which rested the duty of keeping the highway safe and convenient for travel. Responsibility of the contractor for the condition of the sidewalk was not to be inferred from the fact that the defect was reported to its superintendent.

STREET IMPROVEMENT CONTRACTOR CANNOT RECOVER AGAINST CITY AFTER ALLOWING STATUTE OF LIMITATIONS TO RUN AGAINST TAX WARRANTS.

In an action against a city by a street contractor it appeared that the contractor allowed the statute of limitations to run against tax warrants which he held under his contract against the abutting property before he commenced his action against the city, and it also appeared he had never made any effort to enforce these warrants. The Kentucky Court of Appeals holds, *Knepple's Ex. v. Town of Southgate*, 238 S. W. 1051, that in such circumstances no action was maintainable by the contractor against the city for the cost of the street improvements, for that court has held (*City of Louisville v. Hexagon Tile Walk Co.*, 103 Ky. 552) that the city is not liable to the contractor for such improvements until it has been found by a court of competent jurisdiction that the abutting property owners and such property are not liable to the contractor on the tax warrants for the improvements. In other words, the city is not liable for the costs of the improvement of a street which it has directed to be made, unless and until it has been determined by a court in a proper proceeding that the tax warrant or other lien attempted to be created by ordinance of the city is invalid against the abutting property; no action can be maintained until such proceeding is first had in a court of competent jurisdiction.

SUBCONTRACTORS' CERTIFICATES TO LABORERS NOT BINDING ON CONTRACTORS

The Arkansas Supreme Court holds, *Arkansas Road Const. Co. v. Evans*, 239 S. W. 726, that the Arkansas statute providing that a contractor's bond given thereunder for the faithful performance of public work inures to the benefit of those furnishing labor and materials and that an action may be

maintained by one of such persons to recover for labor performed or material furnished in the fulfillment of the contract. But the subcontractor's certificate of the amount due by him to a laborer cannot be said to be an account stated in favor of the laborer against the principal contractor. The certificates of indebtedness do not bind the principal contractor and are, therefore, not assignable so as to permit the assignee to bring action upon them without the assignor being a party.

USE OF SOFT BRICK AND CEMENT INSTEAD OF HARD BRICK FOR MANHOLES NOT FRAUD

In a proceeding to enjoin the collection of sewer assessments, the plaintiffs relied, as evidence of fraud, on departure from the specifications, which required that in the construction of manholes hard brick should be used. At the time of construction, the only hard brick on the market was too hard for such construction. To avoid delay, the city and the contractor met the situation by the use of softer brick and cement, which had the approval of the engineer. The result was the full equivalent of what was contracted for, and the cost was substantially the same. There was neither deception nor bad faith. It was held, *Lundberg v. Lake City*, Iowa Supreme Court, 187 N. W. 384, that the departure from the specifications did not constitute fraud, and the assessment was valid.

PUBLIC CONTRACTOR HELD LIABLE TO PRIVATE PARTY FOR NEGLECT TO PERFORM COVENANTS

The New York Appellate Division, New York Pneumatic Service Co. v. P. T. Cox Contracting Co., 193 N. Y. Supp. 655, holds that contractors with a state or municipality in a public contract, who assume, for a consideration received from the sovereign power, by covenant, express or implied, to do certain things, are liable, in case of neglect to perform such covenant, in a private action at the suit of the party injured by such neglect, and such contract inures to the benefit of the individual who is interested in its performance. (*Little v. Banks*, 85 N. Y. 258,263). And this is true although the state or municipality might not be liable to the private individual (*Markey v. County of Queens*, 154 N. Y. 675,684). The obligation which does not rest on the assumption of a legal obligation is based on a moral one, which is enforceable in equity.

GARBAGE REMOVAL CONTRACT HELD NOT EXCLUSIVE

The Wyoming Supreme Court holds, *City Sanitation Co. v. City of Casper*, 206 Pac. 149, that a contract between a city and a sanitation company whereby the latter agreed to haul "all" the city garbage for two years, with the privilege of renewal from year to year for a period of ten years, the company to equip itself with the necessary appliances as required by a city ordinance, was not exclusive, and the contractor was not entitled to enjoin the city from entering into a similar contract with another contractor.

NEWS OF THE SOCIETIES

CALENDAR

July 12-14—NEW ENGLAND ASSOCIATION OF COMMERCIAL ENGINEERS. Exhibition. Auditorium Bldg., Springfield, Mass.

Aug. 15-17—LEAGUE OF IOWA MUNICIPALITIES. Annual meeting. Secretary, F. G. Pierce, Marshalltown, Ia.

Aug. 15-18—INTERNATIONAL ASSOCIATION OF FIRE ENGINEERS. Fiftieth convention. Municipal Auditorium, San Francisco, Cal. Secretary, James J. Mulcahey, Chief, Yonkers, N. Y., Fire Dept.

Aug. 28-Sept. 2—NATIONAL SAFETY CONGRESS. Detroit, Mich.

Sept. 11-15—ASSOCIATION OF IRON AND STEEL ELECTRICAL ENGINEERS. New Auditorium, Cleveland, Ohio.

Sept. 12-15—NEW ENGLAND WATER WORKS ASSOCIATION. 41st annual convention. New Bedford, Mass. Secretary, Frank J. Gifford, Tremont Temple, Boston, Mass.

Sept. 25-28—SOUTHWEST WATER WORKS ASSOCIATION. Annual convention. Hot Springs, Ark.

Oct. 1-6—AMERICAN SOCIETY FOR MUNICIPAL IMPROVEMENTS. Annual convention. Cleveland, Ohio.

Oct. 16-19—AMERICAN PUBLIC HEALTH ASSOCIATION. Annual meeting. Cleveland, Ohio.

Nov. 15-16—NATIONAL INDUSTRIAL LEAGUE. Annual meeting. New York City. Secretary, J. H. Beck, Chicago.

Dec. 7-13—NATIONAL EXPOSITION OF POWER AND MECHANICAL ENGINEERING. New York City.

FEDERATION COUNCIL

The executive board of the American Engineering Council of the Federated American Engineering Societies, besides adopting the report of its committee on Registration of Engineers, at its recent Pittsburgh meeting, discussed several other matters of national and international scope. Important features of the meeting were: the employment service now maintained in New York is to be turned over to the administration and control of the four founder societies; the committee on Regional activities reported progress toward a general plan for the affiliation of local or state organizations; plans were announced for the solution of national water power and forestry problems, and it was decided to lay the entire question of water power before President Harding; progress was reported by the committee on Work Periods in Continuous Industries in its investigation into the relative merits of three eight-hour and two twelve-hour shifts; it was decided to co-operate with other agencies in finding a solution of the national problem of flood control; and the matter of affiliation of American engineers with the engineering bodies of other nations was considered. Other subjects considered were jurisdictional awards in labor, patent legislation, an international engineering congress, aerial research, engineering representation on the Civil Service Commission, foreign relations, and waste in the agricultural industry.

OFFICERS OF THE AMERICAN INSTITUTE OF ARCHITECTS

The following officers were elected at the A. I. A. convention for the coming year: President, William B. Faville, San Francisco; first vice-president, E. J. Russell, St. Louis, Mo.; second vice-president, Robert D. Kohn; secretary, William Stanley Parker, Boston; treasurer, D. Everett Waid, New York City; and directors, William Emerson, Boston, B. W. Morris, New York City, and William L. Steele, Sioux City, Ia.

PORTLAND CEMENT ASSOCIATION

A regular meeting of the Portland Cement Association, with offices at 111 W. Washington Street, Chicago, will be held at the Hotel Traymore, Atlantic City, N. J., June 27 and 28. On the 27th the program will consist of the following papers: "Steel and Iron and Their Application in the Cement Industry," by W. R. Shimer; and "Quality Control in Cement Manufacture," by Richard K. Meade. On the 28th the regular so-called business session of the association will be held.

NATIONAL CONFERENCE ON CITY PLANNING

The 14th National Conference on City Planning, held at Springfield, Mass., on June 5-7, was attended by more than 200 city and consulting engineers. The meeting was featured by the few and well chosen topics and the full utilization of the time afforded for the discussion of them. Besides the papers, discussions on zoning were carried on at table during breakfast, lunch and dinner each day. The officers elected were Lawson Purdy, president, and Flavell Shurtleff, secretary. The 1923 meeting will be held at Baltimore, Md.

LECTURE BY PROF. ABRAMS

The Seattle branches of the American Society of Civil Engineers and the American Association of Engineers heard recently a discussion on scientific methods of making concrete delivered by Prof. D. A. Abrams of the Lewis Institute, Chicago, who is making a tour of the western states.

A. I. A. CHAPTERS

At the annual convention of the American Institute of Architects in Chicago recently the following chapters were granted charters: Central Illinois chapter, Peoria, Ill.; Erie chapter, Erie, Pa.; St. Paul chapter, St. Paul, Minn.; South Georgia chapter, Savannah, Ga.; and Scranton-Wiikess-barre chapter, Scranton, Pa. These chapters are offshoots from older chapters, and were formed by members who found it inconvenient to

travel the distances necessary to attend meetings of the older groups.

PERSONALS

Bent, Arthur S., of Los Angeles, president of the Associated General Contractors of America, has been elected director for the Civic Development Dept., Chamber of Commerce of the United States.

Piepmeyer, B. H., road engineer of the Illinois State Division of Highways, has been appointed chief engineer of the Missouri state highway department, succeeding A. W. Graham, who resigned.

Calkins, Bert H., has been appointed city manager of Albuquerque, N. M., succeeding James N. Gladding, who resigned recently.

Laylin, John, formerly with the state highway department, has been appointed superintendent of public works of Columbus, Ohio, succeeding E. S. Smith, resigned.

Terriault, H. A., formerly superintendent of water works, has been appointed director of public works of Montreal, Canada, to succeed A. E. Doucet, resigned.

W. F. Strouse, chief engineer of the public service commission, Baltimore, Md., has been made valuation engineer, and H. Carl Wolf, assistant engineer, will be made chief engineer.

Labishiner, Jacob, has been appointed city engineer of Amsterdam, N. Y.

Shirley, H. G. has been appointed chairman of the new State Highway Commission by Governor Trinkle of Virginia. Mr. Shirley, now county engineer of Baltimore county, Md., was made state highway engineer of Maryland in 1912. He represented the American Association of State Highway Officials on the Highway Transport Committee of the Council of National Defense and was secretary of the Federal Highway Council, Washington, D. C. He was the first president of the American Association of State Highway Officials, has had experience in field work with the New York Central and with the Baltimore & Ohio railroads and is a veteran.

Nicolet, T. W., has opened an office in Pittsburgh for landscape architecture and town and city planning. He has formerly been a member of the faculties of the Universities of Nebraska and Illinois, has engaged in private practice, and was in the Engineering Branch of the Construction Division of the United States Army.

Howe, Dr. Henry M., professor emeritus of metallurgy at Columbia University and past-president of the American Society for Testing Materials, died on May 14, at his home in Bedford Hills, N. Y., in his seventy-fifth year.

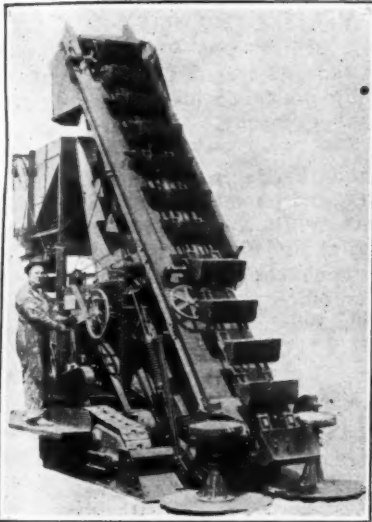
Bradish, George P., city engineer of La Crosse, Wis., for the past fifteen years, died recently after an illness of less than an hour.

New Appliances

Describing New Machinery, Apparatus, Materials and Methods and Recent Interesting Installations

LARGER SELF FEEDING BUCKET LOADER

The Barber-Greene Co. announces that it is now ready to supply a bigger and better self-feeding bucket loader with a capacity increased from 1-1/4 to 1-3/4 cubic yards per minute. This new machine, model 42, has the same type of disc feeder that distinguished the first Barber-Greene machine and here consists of two 36-inch flat steel discs placed in a hori-



BARBER-GREENE SELF-FEEDING BUCKET LOADER.

zontal plane at the lower end of the boom and driven by gears so that they both turn toward the center, thus bringing the material to the bucket and providing a better arrangement for controlling the discs. A measuring hopper with a varying capacity up to 21 cubic feet can be furnished for the use of road contractors although the standard equipment is a swivel spout that can be turned from the operator's platform. Another new feature is the adoption of the standard Cotta truck transmission giving 3 feet forward and one reverse.

Traction is provided by crawlers having 60x10-inch continuous treads operated by 2-inch Diamond drive chains and equipped with special hubs provided with a bolt that breaks when too much strain is put on the crawlers. All moving parts of the crawler are completely protected from mud and dirt by a tight housing. A combination scraper and shoe assures practically a 100 per cent. pickup, and skirt boards protect the operator and machine from material falling from the bucket.

Hand wheels are provided for ad-

justing the elevator to desired digging level or raising it from the ground when traveling and for making fine disc adjustment causing the discs either to dig in or ride out of the material as required. Part of the weight of the elevator and digging end is supported by heavy springs. Abundant power is provided by the Buda Model M U Truck Type 4-Cylinder Gasoline Engine.

The crawlers are controlled by two levers and the elevator by a third and all the controls are easily reached by the operator who rides on the machine. The machine is steered through two independent clutches, one controlling each crawler, enabling the machine to turn around in the length of its crawlers. The length over all is 7 feet 9 inches, width at discs 6 feet 4 inches, discharge height 9 feet 6 inches, maximum height in working position 16 feet 9 inches, minimum height for shipping 10 feet, approximate weight 11,000 pounds.

THE SPRINGFIELD SWEEPER

This machine, manufactured by the Springfield Motor Sweeper Co., is constructed on new principles differing radically from those embodied in the design and construction of the pick-up sweepers on the market, and is intended to overcome the principal objection to other types that have excessively wide pick-up brooms and elevators and use wooden brushes that require frequent replacement.

In this machine the patent side brushes first sweep the material collected into a windrow that is picked up by a broom 3 feet wide and delivered to the elevator belt, thus eliminating the necessity for large brooms and conveyors 7 feet or more in width.

The material is handled by steel brushes, that, unlike wooden brushes, do not require renewal every few days. The sweepings are delivered to a

pivoted dumping box which easily and quickly discharges them from the rear of the machine.

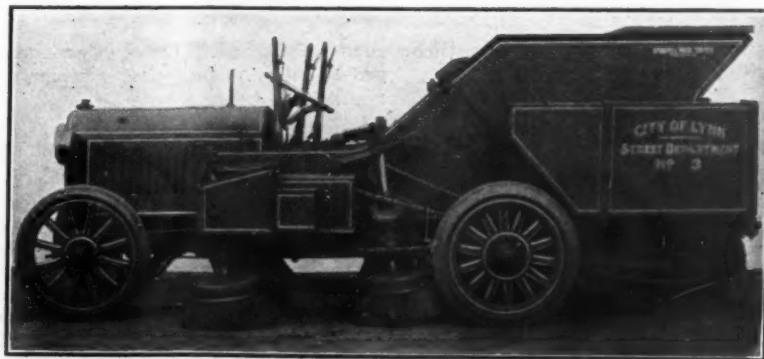
MOTOR BUSES FOR SUPPLEMENTARY SERVICE

Some electric railways now utilize the motor bus as an economical means for extending service and better serving the public and indications are that they ultimately will become large users of the gasoline carrier. Railways in a number of cities have purchased buses for the establishing of feeder lines, and initial experiments have proved so successful that many roads after giving the bus a thorough trial have decided to greatly increase their bus equipment. The bus offers an excellent cross-town transportation medium and is far less costly than equipment necessary for the operation of electric cars.

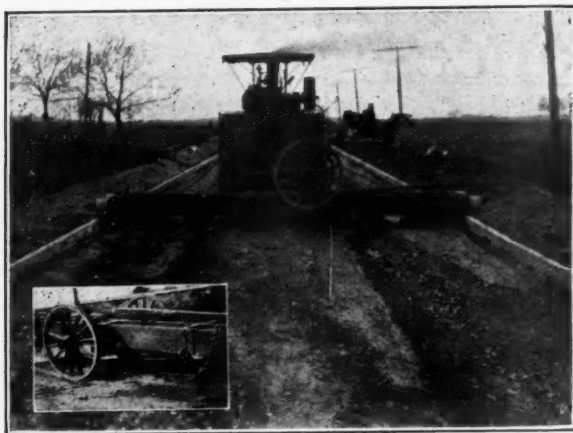
The Milwaukee Electric Railway & Light Company has 18 White buses in service and nine more on order which will be put on the road within the next few weeks. Three of them are in interurban service between Milwaukee and Waukesha. Other electric lines having recently purchased White motor buses are the Northern Ohio Traction & Light Company, Akron, 13; the Rockford & Interurban Railway, Rockford, Ill., 6 and the Pennsylvania-Ohio Electric Company, 5. All five of the P.-O. buses will be used in interurban service. The great majority of these installations are the White Model 50, a bus designed especially for passenger transportation.

HUG SUBGRADING MACHINE

This machine, equipped with grader blades, makes a smooth, flat grade or a smooth, crowned grade to the exact required specifications; which will get any inspector's approval. The machine is of simple, positive construction, and is sturdily built to secure maximum effi-



SPRINGFIELD MOTOR SWEEPER.



HUG SUBGRADING MACHINE WITH SPECIAL CRANK AXLE AND WHEEL ATTACHMENT.

ciency and minimum maintenance. The alignment of the machine is maintained by means of a coulter at rear of each end. Leaves surplus earth in windrows for filling up low spots used on industrial as well as on truck-haul jobs. It can be quickly placed on and removed from road forms and subgrade.

It is claimed that it pays for itself on first half mile of road in savings effected. Crank axle and wheels provide easy transportation.

This machine will save the labor of ten men a day. Trims the subgrade true to grade. Cutting depth is easily adjustable. Special crank axle and wheels provide easy transportation. Manufactured by the Hug Company.

INDUSTRIAL NOTES

The Marck Engineering & Contracting Company, which for the past three years has been operating in the West Indies with offices in Santo Domingo, has opened offices in Brooklyn, N. Y., through which it expects to facilitate movement of American materials and machinery for work in Latin America.

The New Jersey Concrete Products Corp. has taken over the factory of the Pre-Cast Concrete Co., near Dover, N. J. In addition to pre-cast structural concrete and ornamental stone, the corporation, whose factory is in Dover and executive office in New York City, will supply other concrete products, such as building tile, face and common brick, etc.

H. L. Schwartz, formerly of Schwartz & Pease, Philadelphia, has opened an office in that city, where he will continue to represent the American Well Works of Aurora, Ill., and the Dean Brothers Steam Pump Works of Indianapolis, Ind.

H. H. Hunter will be associated with L. S. Kuhn of Bloomington, Ill., on highway construction work, following

his resignation from the State Highway Department. The new firm is at present engaged in road work at Wataga, Knox County.

The Lakewood Engineering Co., Cleveland, Ohio, announces that the Contractor's Trading Co., Inc., will handle their building construction equipment exclusively.

The Barber Asphalt Paving Co. has changed its name to the Barber Asphalt Co., this change involving no alteration

in the organization or obligations of the company.

George S. Hedge and Frederick W. Mattheis have organized the Hedge & Mattheis Co., with offices at 50 Dorchester Ave., Boston, Mass., to deal in construction equipment.

The Decatur Bridge Co., Decatur, Ill., and the Christopher & Simpson Iron Works Co., of St. Louis, have combined to form the Mississippi Valley Structural Steel Co. W. M. Wood of Decatur, Ill., is president of the company and C. R. Dick, secretary.

Chicago Engineering Associates has been decided upon as the new name for an association of existing organizations to render engineering and construction service, with offices in Chicago. James N. Hatch is chief engineer for this association and Edward N. Lake, general manager.

James I. Vincent has been appointed Eastern representative of the Chicago Bascule Bridge Company with offices at 30 Church street, New York. From 1912 until very recently Mr. Vincent was Eastern representative of the Strauss Bascule Bridge Company, in charge of the New York office.

The Rennolds Equipment Co. has been organized by A. Rennolds, formerly with the Equipment Corporation of America, with offices in the Lumber Exchange Bldg., Chicago, where it will handle a complete line of contractors' equipment and will buy slightly-used machinery to rebuild, sell or rent.

The Michigan Valve and Foundry Co. has purchased the business of the Flower Valve Manufacturing Co., manufacturers of fine hydrants, valves and hydraulic supplies at Detroit, and expects to continue the business along the same lines.

Adams, James C., has resigned as deputy city engineer of Binghamton, N. Y., to enter the contracting field.

FIRE-PROOFING & GRANOLITHIC COMPANY

The principals of the staff of the former Roebling Construction Company that developed cinder concrete as a fire-proofing material and introduced it in New York City in 1895-96 are now organized as the Fire-proofing and Granolithic Company, Inc., 331 Madison Avenue, New York. They are prepared to supply any of the cinder concrete floor slabs approved by the New York Building Department and to contract for all kinds of granolithic cement work.

REMOVAL ANNOUNCEMENT

The general offices and show rooms of the following companies are now located at 41 East 42nd street, New York City: The Iron Products Corporation, the Central Foundry Company, Central Iron & Coal Company, Chattanooga Iron & Coal Corporation, Molby Boiler Company, Central Radiator Company.

Iron Products Corporation, New York, and its subsidiaries, the Central Foundry Co., Central Iron & Coal Co., Central Radiator Co., Molby Boiler Co., announce the opening of a district sales office in the Jefferson County Bank Building at Birmingham, Ala., June 1, 1922.

Langthorn & Smith, Inc., engineers and builders, 120 Liberty street, New York, announce their incorporation for carrying on the building business formerly conducted by C. H. Smith. J. S. Langthorn, president, member American Society of Civil Engineers; C. H. Smith, vice-president.

Orton & Steinbrenner Co., manufacturers of locomotive cranes, grab buckets and coal crushers, have moved their offices from the eleventh to the nineteenth floor of the Transportation Building, 608 So. Dearborn Street, Chicago.

Mr. A. P. Blackstead, formerly chief engineer of the Camden Iron Works (R. D. Wood & Co.), Camden, N. J., and prior to that hydraulic engineer with the Henry R. Worthington Company, New York, has joined the engineering staff of the Dayton-Dowd Company, manufacturers of centrifugal pumps and approved underwriters' fire pumps.

Hirsch, John G., formerly supervising engineer for Lockwood, Green & Co., engineers, Chicago, Ill., and Stone & Webster, Boston, Mass., has become associated with the Benham Engineering Co., consulting engineers, Kansas City, Mo., as principal assistant engineer. Mr. Hirsch has had a very wide experience in waterworks, water power and electric light projects.

Advance Contract News

ADVANCE INFORMATION

ITEMIZED PRICES

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

BIDS ASKED FOR

STREETS AND ROADS

Ala., Montgomery July 19
For 20.48, 14.617 and 3.48 mi. rd. work.—St. Hwy. Com.

Ala., Montgomery July 25
For const. 18.754 mi. rd., clear, grub., excav., laying pipe, culvts., work on bridges, etc.—St. Hwy. Com.

Cal., Sacramento 2 p.m., July 10
For const. portions of St. Hwy. in Placer Co., 16.6 mi. to be graded and paved with bit. mac.—A. B. Fletcher, St. Hwy. Comr.

Cal., Salinas July 6
For grad. 3 mi. Robinson-Canyon Rd.—Co. Supvrs.

Cal., San Luis Obispo July 6
For impv. Sect. C, Pozo Rd., incl. excav., conc. in bridges, walls, culvts., etc.—Co. Supvrs.

Cal., Yuba City July 6
For work on various rds.—Co. Supvrs.

Del., Wilmington noon, July 5
For const. 2 1/4 mi. conc. pavt.—St. Hwy. Com.

Fla., Miami July 18
For pav. sts. and sidewalks.—Mayor.

Fla., Sanford 10 a.m., July 18
For resurf. 181,000 sq. yds. brk rds. and 12,700 sq. yds. rock, or other hard surf. shoulders—Co. Comrs.

Ga., Atlanta July 1
For pav. sects. of sev. rds.—Pub. Wks. Committee of Co. Comrs.

Ill., Freeport July 1
For pav. to cost \$74,600.—Bd. Local Impvs.

Ill., Chicago 11 a.m., July 1
For const. paving, etc.—Bd. Local Impvs.

Ill., Springfield 10 a.m., July 6
For road work in various Cos.—Dept. Pub. Wks. & Bldgs.

Ind., Auburn 8 p.m., July 17
For repairing and patching portions of asph. sts.—Common Council.

Ind., Boonville 7 p.m., July 3
For impv. st.—Retta Hickerson, City Clk.

Ind., Kokomo 10 a.m., July 10
For impv. rdway, by const. sewers, sidewalks, curbs and gutters, etc.—Bd. Pub. Wks.

Ind., Indianapolis 2 p.m., July 7
For grad. and pav. rdways of sev. sts.—Bd. Pub. Wks.

Ind., Monticello 10 a.m., July 8
For impv. cert. sts.—Jas. Y. Stephenson, City Clk.

Ind., Tipton 10 a.m., July 3
For impv. 1,926 ft. John A. Stewart Rd., gravel, \$2,242.—Chas. Grishaw, Co. Aud.

Ind., Winamac 7:30 p.m., July 10
For pav. cert. sts., 24,000 sq. yds. pav., 14,500 lin. ft. curb., with drain.—Bd. Town Trustees.

Ind., Columbia City 2 p.m., July 6
For impv. 10,600 ft. gravel hwy., 5,920 ft. gravel, and impv. 23,454 ft. Goss-Leaman Rd.—Walter K. Burwell, Co. Aud.

Ind., Delphi 2 p.m., July 5
For impv. Elmer Showalter, et al., gravel rd.—R. C. Davidson, Co. Aud.

Ind., Huntington 1:30 p.m., July 5
For impv. 14,727 ft. Tilton Dill Rd.—Jos. E. Shideler, Co. Aud.

Ind., Indianapolis 2 p.m., July 5
For grad., pav. and curb. sev. sts.—Bd. Pub. Wks.

Ind., Rensselaer 2 p.m., July 15
For const. Thos. Watson et al. rd.—S. C. Robinson, Co. Aud.

Ind., Princeton 11 a.m., July 12
For impv. 2 1/4 mi. Victor Lemme et al. rd., 4,732 ft. Willard Kolb et al. rd., 16,161 ft. Wm. M. Chappell et al. rd., 20,786 ft. Herman W. Barrett et al. rd., 13,200 ft. J. Russel Townsley et al. rd., 36,187 ft. Herman G. Graper et al. rd., and 13,200 ft. Frank Englehart et al. rd.—Alfred M. Johnson, Co. Aud.

Ind., Rockville 1 p.m., July 5
For impv. 3,090 ft. Rockville and Catlin gravel rd.—Ralph E. Porter, Co. Aud.

Ind., Knox noon, July 3
For impv. R. R. Whitney gravel, and Baughman and Bliss gravel rd.—Henry A. Smith, Co. Aud.

Ind., Spencer 7:30 p.m., July 17
For pav. sts.—Faye Cochran, Town Clk.

Ind., Kokomo noon, July 5
For impv. 1,235 ft. Orville Fenn Rd., gravel, \$3,049.—Arville O. Butcher, Co. Aud.

La., Des Moines 10 a.m., July 3
For grad. mi. co. rd. system.—Co. Aud.

Kans., Hutchinson July 5
For grad. and pav. 1/2 mi. F. A. Proj. 122, \$30,000.—Bd. Co. Comrs.

La., Baton Rouge noon, July 15
For gravel surf. 2 sects. of rd., 4.98 mi. and 8.88 mi.—St. Hwy. Com.

La., Baton Rouge noon, July 5
For gravel surf. 11.21 mi. rd.—St. Hwy. Com.

Md., Baltimore 10 a.m., July 5
For grad. and pav. with cem. conc.—Bd. Awards.

Md., Baltimore noon, July 5
For bldg. 5 sects of st. hwy., Carroll, Frederick, Howard and Baltimore Cos., conc. and St. Marys and Charles Cos., gravel.—St. Rds. Com.

Mass., Boston noon, July 6
For recut granite block pavt. in Roxbury and Dorchester.—Jos. A. Rourke, Comr. Pub. Wks.

Mass., Boston 1 p.m., July 5
For 6,200 ft. cem. conc. rd. in Longmeadow, 9,994 ft. in West Springfield, 18,794 ft. bit. mac. rd. in Yarmouth and 3 bridges and approaches in Becket.—A. W. Dean, Ch. Engr., Div. Hgwys., Dept. Pub. Wks.

Mich., Adrian 10 a.m., July 12
For impv. 6,420 ft. Assessment Dist. Rd. No. 23.—F. F. Rogers, St. Hwy. Comr.

Mich., Crystal Falls 10:30 a.m., July 11
For impv. 11,275 mi. rd., St. Trunk Line Rds. Nos. 12-37, 12-42 and 69-3, Sects. A.—F. F. Rogers, St. Hwy. Comr.

Mich., Hastings 9 a.m., July 7
For impv. 6,565 mi. St. Trunk Line Rds. Nos. 79-1 and 37-5, Sect. C.—F. F. Rogers, St. Hwy. Comr.

Mich., Lake City 1:30 p.m., July 13
For impv. 5,870 mi. rd. in Missaukee and Roscommon cos.—F. F. Rogers, St. Hwy. Comr.

Minn., St. Paul 10 a.m., July 3
For impv. Stillwater Rd., rein. conc. pavt. and grad., and grad., gravel and clay. 1.3 mi. Rice Creek Rd.—Bd. Co. Comrs.

Mich., Manistique 10:30 a.m., July 6
For surf. treating 4,131 mi. St. Trunk Line Rd. No. 12-44.—F. F. Rogers, St. Hwy. Comr.

Mich., Port Huron 1 p.m., July 6
For impv. 0.947 mi. St. Trunk Line Rd. No. 19-18.—F. F. Rogers, St. Hwy. Comr.

Mich., West Branch 1:30 p.m., July 12
For impv. 0.712 mi. F. A. Rd. No. 53, Sects. E and F.—F. F. Rogers, St. Hwy. Comr.

Mo., Albany 1 p.m., July 5
For impv. 2,803 mi. Proj. 20,169.—E. H. Piepmeyer, Ch. Engr., St. Hwy. Com. Com.

Mo., Pineville 9 a.m., July 7
For impv. 4,972 mi. Proj. 20,173.—E. H. Piepmeyer, Ch. Engr., St. Hwy. Com.

Mont., Livingston July 3
For const. sidewalks.—City Clk.

N. H., Berlin July 3
For placing 2,200 sq. yds. conc. sidewalk.—M. J. Myler, Chn., Pub. Wks. Committee.

N. J., Jersey City 3 p.m., July 5
For regulat. and repav. with sh. asph.—Edw. J. Holland, City Clk.

N. J., North Bergen 8 p.m., July 6
For impv. sts. and st. intersections.—Edw. A. Ryan, Twp. Clk.

N. J., Trenton 11 a.m., July 14
For const. Route No. 1, Sect. No. 13, 32,711 sq. yds. war-bit. pavt. on port. cem. conc. base, and 49,855 sq. yds. Route No. 1, Sect. No. 14.—St. Hwy. Com.

N. J., Belvidere 1 p.m., July 14
For const. State Hwy. Route No. 9, Sect. No. 9A, rein. cem. conc. pavt.—Bd. Chosen Freeholders.

N. J., Hillside 8:15 p.m., July 5
For const. conc. sidewalks.—Twp. Committee, Central Grammar School.

N. J., Wanaque 8 p.m., July 3
For const. cem. sidewalks and curb.—Boro Council.

N. J., Newton 10:30 a.m., July 11
For pav. with rein. conc.—Town Committee.

N. J., Newton 10:30 a.m., July 11
For pav. Freedom Newton Rd., Branchville, Dingmans Rd., rein. conc.—Sussex Co. Clk.

N. J., Somerville 7 p.m., July 13
For const. 12,933 sq. yds. rein. cem. conc. pavt. and 3,076 sq. yds. granite block on St. Hwy. Route 9, Sect. 7.—W. J. Hardin, Boro Engr.

N. J., Somerville 10 a.m., July 14
For const. St. Hwy. Route No. 16, Sect. No. 2, 38,419 sq. yds. rein. cem. conc. pavt.—Bd. Chosen Freeholders.

N. Y., Manhattan 2:30 p.m., July 6
For pav. rdway, with incidental work in Bronx.—Dept. Parks, Mun. Bldg.

N. Y., Manhattan 2 p.m., July 6
For regulat. and pav., widening and repav., etc.—Julius Miller, Boro. Pres., Mun. Bldg.

N. Y., Queens 11 a.m., July 5
For regulat. and grad., const. gutters, etc., lay. sidewalk, recurb., etc., on various rds.—Maurice E. Connolly, Boro. Pres.

N. Y., White Plains 10 a.m., July 3
For const. Seven Bridge Rd. and North Broadway.—Bd. Supvrs.

N. Y., Brooklyn 11 a.m., July 5
For regulat., repav., grad., curb. and lay. sidewalks, resurf., etc.—Edw. Rieglmann, Boro. Pres., Boro. Hall.

N. C., Graham July 3
For hardsurf. 7.3 mi. rd. and const. steel span bridge, \$100,000.—Co. Com.

Oh., Cleveland 11 a.m., July 8
For pav. in Kinsman rd., Shaker Heights vil.—Co. Comrs.

Oh., Euclid July 3
For grad., curb., pav., lay. conc. or stone sidewalks, etc., \$75,000.—F. A. Pease Engr. Co., Marshall Bldg., Cleveland.

Oh., Chillicothe July 17
For filling washed-out rdways, const. spillway sewer, culvt. and lay. conc. pav. on Huntington Pike.—W. S. Barrett, Co. Aud.

Oh., Cleveland July 12
For drain. and paint. Lee Rd.—Clk., Bd. Comrs.

Oh., Elyria July 7
For grad., const. drains, catchbasins, manholes, etc., and lay. sewer conn., and pav. 3 sts. of city.—H. A. Beck, Dir. Pub. Serv.

Oh., Hamilton July 7
For impv. Hamilton Eaton Rd.—C. Z. Mikesell, Clk., Bd. Comrs.

Oh., Logan July 8
For impv. st. by grad., curb. and pav., erect. conc. culvt. and const. sewers.—W. I. Krieg, Clk., Bd. Pub. Serv.

Oh., Lisbon July 3
For grad. and drain. Wellsville-Salineville public rd.—Co. Comrs.

Oh., Massillon July 12
For impv. 10 sts. by pav. and resurf.—Clk., Dir. Pub. Serv.

Oh., Akron noon, July 5
For pav., grad. and walks on various sts.—M. P. Tucker, Dir. Pub. Serv.

Oh., Oak Harbor July 12
For pav. in 3 sts.—Vil. Clk.

Ore., Oregon City July 10
For impv. 3.7 mi. Molalla-Oregon City Rd., 2 mi. South End Rd., and surf. 3 mi. Mount Pleasant-Central Pt. Rd., \$40,700, \$22,000 and \$33,000, respv.—County Court.

Pa., Westview 8 p.m., July 18
For grad., curb. and pav. sts.—Boro.

Pa., Lilly 6 p.m., July 3
For impv. cert. sts.—P. F. Campbell, Boro Engr.

R. I., Providence 11 a.m., July 5
For reconst. sect. of State hwy., 3.9 mi.—St. Bd. Public Rds.

R. I., Providence 2:15 p.m., July 3
For regrad. at Ruggles St. primary school—Bd. Contract & Supply.

S. C., Columbia July 18
For const. 4.819 mi. rd., incl. excav., reinforcing, conc. work, etc.—St. Hwy. Dept.

Tex., Gonzales July 12
For grad. and gravel surf. 9.27 mi. St. Hwy. 29, \$64,095.—J. C. Romberg, Co. Judge.

Wash., Chehalis 2 p.m., July 17
For clear., grub., drain., pav., etc., 2,758 ft. rd.—Eva Knight, Co. Aud.

Wash., Kalama 2 p.m., July 6
For const. by clear., grub., drain. and grad. 2 mi. rd.—R. A. Davis, Clk., Bo. Co. Comrs.

Wash., Olympia 10 a.m., July 11
For const. steel bridge, grad. and drain. 0.75 mi. and 1 mi. Pacific Hwy.—St. Hwy. Com.

Wash., Raymond July 6
For impv. Perm. Hwy. No. 10.—Co. Aud.

W. Va., Charleston 10 a.m., July 11
For const. Proj. 3135-B, 2.75 mi. grad. and drain. structures.—St. Rd. Com.

Wis., Elkhorn July 1
For conc. surf. on St. Trunk Hwy. 99, 89.—Co. Rd. & Bridge Com.

Wis., Kewaunee 8 p.m., July 5
For const. conc. sidewalk, combination curb and gutter.—Bd. Pub. Wks.

Wis., Juneau July 6
11 a. m., grad. and surf. Beaven Dam-Columbus Rd., Sects. A and B, 6.54 mi.; 1:30 p. m., Juneau-Watertown Rd., 4.54 mi.; 2:30 p. m., Main St., Vil. of Clyman, .47 mi., and Beaven Dam-South Beaven Dam Rd., 1.51 mi.—Co. State Rd. and Bridge Committee.

SEWERAGE

Fla., Miami July 18
For const. sewers.—C. W. Murray, Dir. Pub. Serv.

Ill., Chicago 11 a.m., July 6
For const. sewers and water service pipe in various sts.—Bd. Local Impvs.

Ind., Indianapolis 10 a.m., July 5
For const. local sewers in various sts.—Bd. Pub. Wks.

Ind., Winamac 7:30 p.m., July 3
For const. sewer system.—Clarence H. Barnett, Town Clk.

La., Shreveport 10 a.m., July 1
For const. san. sewer.—J. C. Flanagan, Sec'y.-Treas.

Mass., Boston noon, July 5
For sewerage works in South Boston.—Jos. A. Rourke, Comr. Pub. Wks.

Mass., Boston noon, July 6
For sewerage works in Brighton.—Jos. A. Rourke, Comr. Pub. Wks.

Mass., Boston noon, July 17
For sewerage works in East Boston.—Jos. A. Rourke, Comr. Pub. Wks.

Mich., Menominee July 7
For main sewers in various sts.—F. S. Norcross, City Clk.

Mont., Livingston July 3
For const. 425 lla. ft. 6-in. sewer pipe.—City Clk.

Neb., Lincoln 10 a.m., July 1
For lay. sewers in Sewer Dist. No. 233.—Theo. H. Berg, City Clk.

O., Lima July 15
For new sewerage disposal plant (bids postponed).

O., Euclid July 3
For const. sewers, \$25,000.—F. A. Pease Engrg. Co., Marshall Bldg., Cleveland.

O., Napoleon July 7
For const. san. sewer.—Vil. Clk.

O., Geneva noon, July 7
For const. sewage treatment plant.—Vil. Clk.

O., Toledo 10 a.m., July 10
For local san. sewer and water supply lines.—Bd. Co. Comrs.

Va., Farmville noon, July 10
For const. conc. coagulating basin.—Jas. A. Davidson, Mayor.

LIGHTING AND POWER

Ala., Dothan 2 p.m., Aug. 15
For const. hydro-electric proj.—City.

Ind., Knightstown 8 p.m., July 17
For steam engine direct conn. to current generator, and complete with accessories, or steam turbine generating unit with accessories.—R. M. Parker, Town Clk.

N. Y., Cohoes noon, July 10
For 2 hydraulic turbines with equip. and water wheel generators, etc., at power house at Crescent Dam.—Supt. Pub. Wks., Capitol, Albany.

Pa., Moon Run 8 p.m., July 14
For elect. pump with motor.—Robinson Twp. School Dist.

WATER SUPPLY

Mass., Boston noon, July 5
For furn. 200 4-in. c. l. bell and spigot pipe.—Frank P. Rock, Supt. Supplies.

Neb., Lincoln 10 a.m., July 1
For const. water mains and appliances in Water Dist. No. 32.—Theo. H. Berg, City Clk.

N. H., Gorham July 6
For excav. and installation of sewer and water pipes for abt. 1,700 ft.—Water and Sewer Comrs.

N. Y., Manhattan 10:30 a.m., July 7
For c. l. pipe, valves, special castings and fire hydrants.—Bd. Purchase, Mun. Bldg.

N. Y., Manhattan 11 a.m., July 7
For converting existing "dry" feed equipment at Dunwoodie chlorinating plant to "wet" feed equip.—Nicholas J. Hayes, Comr. Water Supply, Gas and Elect., Mun. Bldg.

N. Y., Buffalo 11 a.m., July 11
For conc. filter plant substructures.—Comr. Pub. Wks.

N. Y., New York 11 a.m., July 11
For sluice gates, hydraulic cylinders, fittings and appurt. for intake shaft of Shandaken tunnel.—Bd. Water Supply, Mun. Bldg.

O., Elyria July 10
For 300 tons c. l. water pipes and fittings.—H. A. Beck, Dir. Pub. Serv.

O., Euclid July 3
For c. l. mains, \$25,000.—F. A. Pease Engrg. Co., Marshall Bldg., Cleveland.

O., Columbus July 10
For const. C. l. water main with valves and hydrants.—Vil. Clk., Bexley.

O., Fremont July 5
For ext. and lay. water mains.—E. H. Russell, Dir. Pub. Serv. and Safety.

Pa., Reading 8:30 a.m., July 5
For water works impvs., incl. foundations and suction vault, pipe and specials, and test borings.—E. L. Nuebling, Ch. Engr., Bur. Water.

DRAINAGE AND IRRIGATION

Ga., Townsend July 17
For const. 6½ mi. drain. ditch and 9.9 mi. lateral ditches.—Jackey Camp D. D. Comrs.

FIRE

N. Y., Manhattan 10:30 a.m., July 7
For fire hose to fire dept.—Bd. Purchase, Mun. Bldg.

BRIDGES

Ala., Montgomery July 20
For const. hwy. bridge and approaches.—St. Hwy. Com.

Cal., Salinas July 6
For const. steel bridge with piers, abuts., etc., over Salinas River.—Co. Supvrs.

Del., Dover 2 p.m., July 26
For const. Smyrna bridges on st. hwy.—St. Hgwy. Dept.

Fla., Sanford 10 a.m., July 18
For const. drawbridge across St. Johns River.—Bd. Co. Comrs.

Fla., West Palm Beach 10 a.m., July 5
For const. bascule lift span with approach spans, etc.—Bd. Co. Comrs.

Ill., Joliet 10:30 a.m., July 27
For const. rein. conc. culvt.—Co. Supt. Hwys.

Ind., Rockville 1 p.m., July 5
For const. Craft culvt., Mansfield and Ferndale bridges.—Ralph E. Porter, Co. Aud.

Ind., Bluffton 2 p.m., July 6
For const. Bridges Nos. 118, 120, 121, 122, and retain. wall, repair of abutments, etc.—F. B. Fishbaugh, Co. Aud.

Ind., Nashville 1 p.m., July 3
For const. Snyder Bridge, 102 ft. span; Chambers Bridge, 90 ft. span, and another 30 ft. span.—H. S. Moser, Co. Aud.

Ind., Eldora 1:30 p.m., July 6
For const. rein.-conc. arch bridge.—Co. Aud.

Ind., Washington July 6
For const. slab bridge and 41 culvts. on F. A. Proj. No. 167.—Co. Aud.

Ind., Des Moines 10 a.m., July 3
For raising end of Valley Junction Bridge over Racoon River.—Co. Aud.

Mass., Boston noon, July 5
For plankng West Fourth St. Bridge.—Jos. A. Rourke, Comr. Pub. Wks.

N. J., Newark 2 p.m., July 13
For const. 2 rein. conc. bridges on Laurel Ave.—Bd. Chosen Freeholders.

N. J., Salem 10 a.m., July 8
For const. bridge on Route 6, St. Hwy. system.—H. B. Keasbey, Co. Comr.

N. Y., Manhattan 2 p.m., July 5
For const. masonry piers for bridge.—Grover A. Whalen, Comr. Plant and Structures, Mun. Bldg.

O., Galion July 14
For const. 4 bridges and repair. 2 bridges.—Comrs.

O., Akron 10 a.m., July 20
For const. 2 bridges.—Bd. Co. Comrs.

O., Cincinnati noon, July 7
For const. 2 conc. bridges on McKinney Rd.—Co. Comrs.

O., Ottawa July 11
For abutment and pier for bridge ext., also new span and repairs to bridge.—Henry G. Moenter, Co. Aud.

Ore., St. Helens 2 p.m., July 5
For erection of 90-ft. span wooden bridge across Nehalem River.—J. W. Hunt, Co. Clk.

Pa., Harrisburg July 5
For const. bridge on private rd.—S. E. Gordon, Sec'y., Bd. Game Comrs.

Wash., Seattle 10 a.m., Aug. 4
For superstructure, etc., of steel bascule bridge and 2 side spans over West Waterway at West Spokane st.—C. B. Bagley, Sec'y., Bd. Pub. Wks.

MISCELLANEOUS

Ky., Louisville 2 p.m., July 17
For metal work for Navigable Pass for Dam No. 44.—U. S. Engr. Office.

Md., Baltimore July 15
For dredging entrance to channel, Baltimore harbor.—War Dept., Dist. Engr.

Mich., Lansing 4 p.m., July 3
For 800 tons dust, 4,500 cu. yds. sand and 3,000 tons binder stone.—J. A. Parsons, City Clk.

N. J., Jersey City 3 p.m., July 5
For 20 tons water gate boxes and covers, and 15 tons sewer manhole frames and covers.—Edw. J. Holland, City Clk.

N. J., Hillside 8:15 p.m., July 5
For collection of garbage and ashes.—Geo. Compton, Twp. Clk.

N. J., Jersey City 3 p.m., July 5
For push brooms, also refilling machine brooms.—Edw. J. Holland, City Clk.

N. Y., Albany noon, July 25
For dredging portion of Henry st. slip, Gowanus Bay.—Supt. Pub. Wks., Capitol.

N. Y., Bronx 11 a.m., July 6
For 35,000 gals. bitum. rd. surf. material.—Wm. J. Flynn, Act. Boro. Pres., Mun. Bldg.

N. Y., Manhattan noon, July 6
For repair D. S. C. scow No. 49.—A. A. Taylor, Comr. St. Clean., Mun. Bldg.

N. Y., Manhattan 10:30 a.m., July 6
For asph. binder to dept. parks, Bronx.—Bd. Purchase, Mun. Bldg.

N. Y., Buffalo 11 a.m., July 25
For pigery and incinerating plant.—A. W. Kreinheder, Comr. Pub. Wks.

N. Y., New York July 16
For dredging in Shoal Harbor and Compton Creek, N. J.—War Dept., Dist. Engr., 616 Army Bldg.

O., Akron noon, July 3
For one 5-ton dump truck.—Purch. Agt.

Ont., Port Colborne July 4
For repair. conc. superstructure at 3 points on Eastern and 2 on Western breakwater, \$75,000.—R. C. Desrochers, Sec., Dept. Pub. Wks., Ottawa.

Work Contemplated

STREETS AND ROADS

Ala., Tuskegee—State Hwy. Comn., Montgomery, will invite bids in a few days for const. 20-mi. gravel road from Line Creek to Tuskegee, Macon co.

Ala., Tuscaloosa—City plans improving Sixteenth, Seventeenth and Eighteenth Sts. and const. roadway from old fair grounds to Hargrove Rd.

Ala., Attalla—City plans expenditure of \$125,000 for pav. 30 blks., bit. mac., penetration method.

Ala., Tuskegee—Government will const. roads and bridges from city limits to site of U. S. Veterans Hosp., to be built; \$200,000 available. Jas. R. Fain, Rd. Const. for Treasury.

Ala., Gadsden—Proposition to build extension of road to Odenville will be deferred for some time.

Ala., Birmingham—Bond issue revised for const. approach to Spring St. viaduct, lengthening approach and reducing grade.

Ala., Birmingham—Ord. passed auth. paving four blks. which has been held up for six months.

Ariz., Phoenix—E. S. Wheeler, Engr., Dist. No. 13, U. S. Bureau Pub. Rds., ordered surveys for 113 mi. rds. in Ariz. and New Mexico to be built with Fed. funds. New Mexico Proj., Canoncito-Pecos, 18 ft. surf., 12 mi.; Cimarron-Toas, 18 ft. surf., 18 mi.; Silver City Reverse, 16 mi., 14 ft. wide, with surf.; Arizona Proj., Prescott-White Spar, 18 mi., 26 mi. to boundary; Flagstaff-Angell, 23 mi., \$125,000.

Ark., Pine Bluff—City Comrs. Pav. Dist. No. 59, plans expenditure \$60,000 to pav. 25 blks. in Hickory, Cypress, Plum and Cedar Sts., Quest Engr. Co.; City Comrs. Pav., Curb and Gutter Dist. 57 will pav. 18 blks. on 14th Ave., Oak Beech and 11th Sts.

Cal., San Diego—Resolution passed for following streets: E. St. to be impv., grad. const., conc. walks, curbs and 8-in. cem. pipe culvt; State St.—Redwood to Quince Sts.—grad., pav. and one course cem. conc.; portions of grade and Drout Sts. pav. with asph. conc. wearing surf. on asph. conc. base; also one course conc. in certain sections; const. conc. walks and culvts; Third St.—Walnut to University Aves.—pav. with asph., conc. wearing surf. on asph. conc. base; portion 8th and A Sts. pav. with asph. conc. wearing surf. on cem. conc. base, const. curbs, house connection sewers; Roosevelt Memorial Dr. between Pueblo lot 1286 and existing pavt. at ft. of Biological Grade, by grad., pav. with one course cem. conc. and const. cem. conc. beams; 35 ft. 13-in.; 27 ft. 24-in. and 30.75 ft. 60-in. corr. iron culvert; Iowa St.—University to Polk Aves.—to be paved with asph. conc. wearing surface on asph. conc. base; Torrey Rd.—Prospect Pl. to Princess St.—to be improved by grad., pav. with one course cem. conc., const. conc. curbs, walks 52 ft. 18-in. corr. iron culvt.; also 30 ft. of Roosevelt Memorial Dr., by grad. and pav. with one course cem. conc., const. 50-ft. 24-in., 37 ft. 18-in. and 48 ft. 24-in. corr. iron culvts; Herman Ave.—University to Thorn St.—to be improved by pav. with asph. conc. wearing surf. on asph., conc. base, const. conc. curbs and walks; 12 ft. 16-in. conc. pipe, 19 ft. 16-in. conc. pipe, 33 ft. 18-in. double strength conc. pipe, 12 ft. 15-in. corr. iron pipe.

Cal., Vallejo—\$438,000 will be expended toward contr. of state hwyys. in Solano co. during 1922.

Cal., Fresno—Plans revised for impv. Echo Ave., 63,576 sq. ft. grading, 57,710 sq. ft. 1½-in. warrentine on 3½-in. asphalt, 3,328 lin. ft. curb, 6,106 s. ft. gutter, 16,594 sq. ft. walks, 300 lin. ft. 4-in. sewer pipe, 306 lin. ft. 12-in. culverts. W. Stranahan, City Engr.

Cal., Fresno—New plans being prep. for pav. 5 mi. Bids in August with added mileage.

Cal., Hayward—Plans prep. impv. var. portions Walkins, D and I Sts., 8,820 lin. ft. 8x16 in. conc. curb and gutter, 26.7 ft. conc. gutter, 133,360 sq. ft. 1½-in. asph. conc. on 3½-in. conc., 40,420 sq. ft. 4½-in. asph. conc. J. B. Holly, Oakland, Engr.

Cal., Vacaville—Plans being prepared 37,000 sq. ft. 2½-in. asph. conc. base, 1½ in. surf., 18,000 lin. ft. conc. curb. F. A. Steiger, Fairfield, Engr.

Conn., New Haven—Bids soon for paving Elm St. from State to York.

D. C., Washington—House passed Dunn bill appropriating \$140,000,000 for road work for next two years.

Fla., Fernandina—State Rd. Dept., Tallahassee, invites bids for const. 10 mi. of road from Duval co. line north; surface treated gravel, crushed stone base course, cement concrete base course, penetration macadam, sheet asphalt or bituminous concrete surface. Plans on file.

Fla., Bradentown—State Rd. Dept., Tallahassee, invites bids for surfacing 7.87 mi. of Rd. No. 5 between Bullard's Creek and Hillsborough co. line; bituminous macadam, sheet asphalt or bituminous concrete surface.

Fla., Arcadia—DeSoto co. will vote July 10 on issuance of \$500,000 of bonds to connect with Highlands co., at South, and to finish State Rd. No. 2 from Hardee to Charlotte co. Chairman, Co. Comrs.

Fla., Deland—Meeting in July to urge const. State Rd. No. 3 from Jacksonville to Orlando; \$200,000 road bonds voted.

Fla., Dade City—\$750,000 highway bonds awarded.

Fla., Wauchula—New paving planned will be asph. conc.

Fla., Avon Park—De Soto Co. plans to vote \$500,000 bonds for const. roads July 10.

Fla., Jacksonville—Bids June 29 for st. impv. bonds, \$150,000.

Ga., Toccoa—United States Bureau of Public Rds. plans to build road into Toccoa basin; \$40,000 available. Dist. Engr., A. E. Lodger, Montgomery, Ala.

Ga., Atlanta—Bids soon for paving three roads in Fulton Co. and reditching another rd.

Ida., Pocatello—Four short links in const. of North and South St. Hwy. will be finished this summer. First of these is 2.75 mi. stretch on Caldwell Blvd.; 2nd, 2.91 mi. no. on Boise Hwy. Grade is to have width of 26 ft. and surf. 18 ft. Est. cost of two links, \$32,219. Culvert draing. will cost about \$2,000 additional. A stretch of more than 20 mi. between Tamarack and Council will be another of the main links to be finished. Nine miles between Lucile and White Blvd. along canyon of Salmon River, will also be built this summer.

Ill., La Grange—Plans prep. for pav. var. sts. Edwin Hancock, Engr., Chicago, Ill.

Ill., Sandwich—VII. Com. contempn. paving. A. L. Webster, Wheaton, Ill.

Ill., Peoria—Ten miles hard road will be built from Canton East to Peoria and 10 miles from Rushville toward Beardstown this summer; also 6 miles no. of Macomb on Monmouth Rd. within one mi. of Good Hope.

Ill., Decatur—Plan for paving North Broadway is assured.

Ill., Decatur—Five ft. conc. sidewalk will be const. on west side of North Jasper St., between Locust and Hickory St.

Ill., Decatur—\$40,960 Adams Co. mac. rd. bonds awarded.

Ill., Decatur—City contemp. pav. 6.33 mi. on Rte. 2, this Fall.

Ind., Williamsport—July 5, 1922, at 2 p. m., by treasurer of Warren co., for sale, \$10,440 hwy. improvement bonds, 5 per cent., ten years. Geoffrey Hickman et al. in Warren Twp., as on specifications. David H. Moffit, Treas.

Ind., Greensburg—July 7, 1922, at 2 p. m., by treasurer of Decatur co., for sale, \$10,400 and \$6,000 hwy. improvement bonds, 5 per cent., 10 years. Virgil Alexander et al. in Marion Twp.; Mathias Johannngman et al. in Marion Twp., as on specifications. Chas. B. Evans, Treas.

Ind., Versailles—July 3, by treasurer of Ripley co., for sale, \$16,600, \$23,800, \$12,200 and \$10,600 hwy. improvement bonds, 4½ per cent., ten years. Grant W. Toole et al. in Ripley co.; H. H. Kastens et al. in Ripley co.; Harvey Jarvis et al. in Brown Twp., and B. H. Kroenke et al. in Adams Twp. William B. Goyert, Treas.

Ind., Paoli—July 3, 1922, at 2 p. m., by treasurer of Orange co., for sale, \$5,000 and \$10,000 gravel road bonds, 4½ per cent., ten years. Johnson and Antloch Rd. in French Lick Twp. Said roads to be constructed under the Twp. Gravel Rd. Law, as on specifications. John L. Teaford, Treas.

Ind., Martinsville—June 28, 1922, at 2 p. m., by treasurer of Morgan county, for sale \$14,000 hwy. improvement bonds, 5 per cent., 10 years. J. T. Grosse in Green Twp. J. S. Spoor, Treas.

Ind., Indianapolis—City Park Bd. decided upon 200 ft. blvd. instead of 400 ft. as originally planned, \$200,000.

Ind., Goshen—Elkhart Co. Coun. approved road building program requiring \$347,200 bond issue for hard surf. roads.

Ind., South Bend—Plans prep. for grad., curb. and sidewalks. O. Sweeney, Clk.

Ind., Fort Wayne—June 19, 1922, at 10 a. m., by treasurer of Allen county, for sale \$370,120 hwy. improvement bonds, 5 per cent., 19 years. Linia Rd. running through Washington and Perry Twp. in said county, as on specifications. E. G. Kampe, treasurer.

Ind., Lawrenceburg—July 7, 1922, at 10 a. m., by treasurer of Dearborn co., for sale, \$14,600, \$7,600 and \$14,400 hwy. improvement bonds, 5 per cent., ten years. Fred Scholle et al. in Washington Twp.; Wm. Walker et al. in Clay Twp., and Wm. Walker et al. in Sparta Twp. Gilbert S. Nowlin, Treas.

Ind., Greensburg—July 7, 1922, at 2 p. m., by treasurer of Decatur co., for sale, \$7,600 hwy. improvement bonds, per cent., 10 years. C. F. Boicourt et al. in Sandcreek Twp., as on specifications. Chas. B. Evans, Treas.

Ind., Williamsport—July 5, 1922, at 2 p. m., by treasurer of Warren co., for sale, \$16,000 hwy. improvement bonds, per cent., 10 years. Jason Bowls et al. in Washington Twp. D. H. Moffit, Treas.

Ind., Covington—July 8, 1922, at 10 a. m., by treasurer of Fountain co., for sale, \$25,600 hwy. improvement bonds, 4½ per cent., 10 years. Byron F. Frazier et al. in Richland and Cain Twp. H. I. Starnes, Treas.

la., Merrill—Prep. plans for 25,000 sq. yds. var. sts., \$55,000. W. E. Buell & Co., 205 Davidson Bldg., Sloux City, Engrs.

la., Iowa City—New paving to cost \$115,692 for 31,000 blks. pav.

la., Ames—Plans prep. for tiling and grad. in Howard Co. for State Hwy. Raymond Zack, M. B. A. Bldg., Mason City, Ia.

la., Cedar Rapids—Plans prep. for pav. T. F. McCauley, Engr.

la., Des Moines—City Com. contemp. paving. K. C. Kastberg, Engr.

Kan., Wichita—Definite action toward pav. No. Lawrence Rd.—city limits to Sedgewick-Harvey co. line—taken by Co. Comrs. when they passed two resolutions asking St. Hwy. Comn. to take immediate steps toward re-grading grade crossings of Santa Fe and Frisco Ry. roads no. of city. M. Roseberry, Co. Engr., announced that county expects to let contr. for the pav. before July 1. Proj. incl. 1 r. r. viaduct, will cost approx. \$600,000.

Md., Baltimore—Dept. Pub. Impv. plan to grade Anne St., Schley St., Ravenswood Ave., Nicholson Ave., Elsinor Ave. and Cedardale Rd.

Md., Maryland—Ord. passed for widening Charles St. from 66 ft. to 80 ft.

Md., Baltimore—Plans being prep. for rds. in var. counties. J. N. Mackoll, 601 Garrett Bldg., Baltimore.

Md., Baltimore—City Paving Comn. has plans ready for pav. 55 streets. Est. cost, \$1,400,000. R. K. Compton, Chrmn.

Mass., Roxbury—Plan resurf. Humbolt & Blue Hill Aves., asph. and other approved types, \$153,000.

Mass., Boston—Approx. \$153,000 will be expended this summer for resurf. Humboldt Ave. and Blue Hill Ave., between Seaver St. and Milton line in Roxbury. Bitulithic surfacing. Mayor has also promised that, if funds are available, he will carry through as far as possible the laying of new granite pav. in Warren St.—Dudley to Grove Hall. He has also made tentative arrangements with Pub. Wks. Comr. J. A. Rourke for expenditure of an additional \$80,000 for street repairs in North and West Ends.

Mass., Adams—Plan for hearing to consider const. Plainfield Rd.

Me., Augusta—State Hgwy. plans to const. two pieces of road, \$100,000.

Me., South Portland—\$253,804 approp. for road expenses for 1922 and 1923.

Mich., Detroit—Plans being prep. for pav. alleys. John W. Reid, Engr.

Mich., Holland—City Engr. instructed to prepare plans and specifications; also estimate of cost on pav. 7th St.—Lincoln Ave. to Pine, and then connect 7th and 8th Sts. on Pine and Lincoln. Macadam base and sheet asph. top dressing will be used.

Mich., Cass City—\$17,000 Paving bonds voted.

Minn., Duluth—Several thousand dollars set aside for const. work on roads in Third Dist.; also Hermantown Rd. and new conc. bridge to be const.

Minn., Polk Co.—(P. O. Crookston).—County Commissioners authorized the issuance of \$150,000 Highway bonds.

Minn., Olivia—40 miles of road will be graded and improved this summer in Renville co. Co. Surv., J. M. Callahan; Co. Aud., A. O. Schmidt.

Minn., Elwell—A \$560,000 Paving bond issue will soon be placed on the market.

Miss., Vicksburg—City will vote July 12 on issuance of \$130,000 of pav. bonds. J. J. Hayes, Mayor.

Miss., Laurel—City will pave Sixth St. from Eighth to Thirteenth Aves. City and Jones co. will pave part of Laurel-Hebron Rd. The Mayor.

Miss., Decatur—Const. of six mi. of road near Hickory, in Newton co., is planned. Co. Supervisors.

Mont., Great Falls—Survey being prep. for const. 14 mi. road from Ulm to Cascade, \$150,000.

Mont., Missoula—Plans prep. for reconstr. Northern Pacific Rd. Will build tunnel 250 ft. long, eliminating bridge and curve in road.

Mo., Columbia—Council has passed resolutions for pav. Paris Rd., Melbourne St. and S. 5th St., with Kentucky rock asphalt. It is hoped to let contr. in near future.

Neu., Carson City—Plans have been completed on Proj. No. 10, Robinson Summit to Illipah, White Pine co., 15 miles grad. and gravel surfacing; No. 44, Illipah to Pancake Summit, White Pine co., 23 mi., grad. and gravel surf.; No. 45, Frenchman's Flat, Churchill co., 5 mi. grad. and gravel surf.; No. 15, West co. line to Vivian, Elko co., 8.34 mi. grad.; No. 22, West co. line to White House, Eureka co., 6 mi. grad. and gravel surf.; No. 31, Eureka to Hayranch, Eureka co., 12.2 mi. grad. and gravel surf.; No. 4, 3 mi. no. of Carters to Holbrook, Douglas co., 4 mi. grad. and 25 per cent. surf. Plans being prepared for Proj. No. 26, Reno to Lawtons, Washoe co., 4 mi. grad. and grav. surf.; No. 16, Battle Mtn., Lander co., 8.5 mi. widening grade and gravel surf.; No. 46, through City of Yerington, Lyon co., 1.5 mi. 18-ft. conc. surf. through City of Fallon, Churchill co., 1.24 mi. 18-ft. conc. surf.; Hazon to Wadsworth, Lyon, Churchill and Washoe cos., 15.65 mi. grad. and gravel

surf. Surveys completed on Rd.—Hazon to Wadsworth, Lyon, Churchill and Washoe cos., through City of Yerington, Lyon co. and through City of Elko, Elko co. Surveys being made on Dallan to Grimes Ranch Rd., Churchill co., Rose Crj. to Winnemucca Rd., Humboldt co. and through City of Winnemucca, Humboldt co. Geo. W. Borden, St. Hgwy. Engr.

N. H., Concord—Bids being called for const. rds. and bridges in var. counties.

N. J., Newark—City Com. contemp. grad., curb. and flag.

N. J., Barrington—Plans being prep. for sidewalks, curbs and gutters. J. J. Albertson, Camden, N. J., Engr.

N. J., Camden—Soon call bids pav. var. sts., conc., asph., etc., \$100,000. L. P. Farnum, Engr.

N. J., Jersey City—Notice given of impv. for Linden Ave., State St. and Hopkins Ave.

N. J., East Orange—Hearing July 10 for repav. Sanford St. and curb., gutter and pav. Crescent Rd.

N. J., Newark—Dir. Dept. Sts. and Pub. Impvts. will suggest delay in widening Mulberry St. from Market St. to New Center Market.

N. J., Trenton—\$25,000,000 hwy. ext. bonds awarded.

N. M., Roswell—City Council has passed provisional pav. order, which, if carried out in its entirety, will result in 41 new blks. pav. being built here.

N. Y., Poughkeepsie—City Engr. Lawlor estimates cost to property owners of new pavement on Main St. from river to Cherry St. at about \$40,000 for cut granite blks. on lower Main St. and comb. of first quality street asph. on sides of street and cement for trolley rails from Washington St. east to Cherry St. Total cost placed at \$140,000, of which \$61,000 is trolley company's share. Business men held special meeting to name committee to co-operate with city administration in having this necessary impv. made.

N. Y., Brooklyn—Ed. of Estimate O. K.'s pav., grad. and sewer plans, as follows: Pav. with asph. (perm.) Bay 32nd at est. cost of \$10,900; regulating and grad. Narrows Ave., \$19,200; regrad., recurb. and reflag. portion Hegeman Ave., \$2,200; pav. with asph. (perm.) portion Conselyea St., \$6,300; regulating and grad. Hinsdale St., \$6,600; asph. pav. (perm.) on portion 48th St., \$8,700; pav. with asph. (perm.) on Kenmore Pl., \$7,000; asph. pav. (perm.) on Ave. K., \$10,500; asph. pav. (perm.) on portion 19th Ave., \$7,200; ashp. pav. (perm.) on 61st St., \$7,600; asph. pav. (perm.) on 71st St., \$6,600; asph. pavement (perm.) Kenmore Pl., \$8,500; asph. pavement (perm.) on E. 14th St., \$11,000. Work includes bitum. asph. (prelim. pavement) from Gravesend Neck to line about 260 ft. so. of Ave. U; granite pav. (perm.) on Dupont St., \$11,600; asph. pavement (perm.) 50th St., \$7,800; regulating and grad. Kenmore Pl., \$3,700; pav. with asph. (perm.) Newkirk Ave., \$4,900; pav. with asph. (perm.) and curb. where necessary Kenmore Pl., \$18,100.

N. Y., Rochester—Ord. passed to pav. Dewey Ave., Birr St. surf. treatment, Kay Terrace pavt., Penn St. mac., Rugraff St. mac. and var. other sts. to be resurf. or pav.

N. Y., Rochester—Plan to const. canal subway, topped by street between South Ave. and Oak St.

N. Y., Boro. Bronx—Resol. passed to grad. Post Rd. from Spuyten-Duyrl Pkway. to W. 253d St.

N. Y., Brooklyn—Resolution passed to curb 61st St., pav. Snyder Ave., grad. 78th St., grad., curb. and flag. Rutland Rd. and 58th St., pav. Hegeman Ave. and Rutland Rd. from Albany Ave. to Schenectady.

N. Y., Boro. Queens—Resolution passed to grad. and regrad. South Jane St., North James St.; pav. Howland St.; grad. curb. and flag. 126th St.

N. Y., New York—No bids received repair. 127 mi. hwy., Chenango Co.

N. Y., New York—Boro. Bronx—Bids rejected for paving Valentine Ave., \$125,000. Will readvertise.

N. Y., Niagara Falls—Bids soon for paving Whitney Ave., \$25,000; sheet asphalt. W. B. Bennett, City Engr.

N. Y., Waterloo—Plans pav. 2.25 mi. var. sts. double seal tarvia, \$25,000. Engr. not selected.

N. Y., New York—Plan to expend \$200,000 for impv. of ten sts. in Queens this year. In Astoria \$3,000,000 to be expended. Fifth Ave. to be paved with sheet asph. from Grand to Jamaica Aves.

N. Y., Rouses Point—Plans prep. and bids being called for impv. streets.

N. C., Brevard—Plans 7 mi. mac. or gravel rd., Rosman to Pickens Co. line, S. C., \$75,000.

N. C., Raleigh—\$9,000,000 road bonds awarded.

N. C., Hertford—Plans const. various rds., brk or other type hard surface, \$339,000.

N. C., Snow Hill—Plans conc. or asphalt pav. const. sidewalks, \$100,000.

O., Youngstown—Bids being called for mac. pav. in Mahoning Co. G. M. Montgomery, Engr.

O., Euclid Village—Bids being called for const. sidewalks. F. A. Pease Engr. Co., 804 Marshall Bldg., Cleveland.

O., Ottawa—Bids being called for pav. in Putnam Co. H. B. Schmenk, Engr.

O., Genoa—Bids being called for pav. Pa., Sharon—Plans prep. for reconstr. L. E. Burnside, Engr.

O., Hamilton—Ord. passed to auth. \$7,000 Street Impv. and Repair bonds.

O., Parma Heights—Voted \$6,000 Road bonds.

O., Dayton—Schedule prep. to pav. 23 streets this summer.

O., Conneaut—Ord. passed to pav. Monroe St.

O., Norwalk—Petition submitted to oppose impv. of Main St.

O., Findlay—\$24,000 North Main St. bonds awarded.

O., Tiffin—Bond issue proposed for Aug. 8 for impv. Washington St.

O., Delaware—Hearing scheduled for road impvts.

O., Amherst—Coun. instructed engr. to impv. Elyria Ave., \$5,300, tar bound mac.

O., Toledo—\$125,000 approp. for ext. of Summit St. from Knapp St. to Bway.

O., Toledo—Resolution passed to repair sidewalk on Canton and Jackson Sts. Ord. passed to impv. Kingsbury Ave.

O., Cleveland—The following paving projects are pending: Maumee—River Rd. resolution to improve 32 ft. through the town adopted. Urbana—1 mile of Woodville pike to be resurfaced with crushed stone or screened gravel and 3 miles of Urbana-Terre Haute pike to be similarly improved. County Surv. Raymond Smith preparing plans and estimates. Columbus—New road between paved road here and the Cambridge-Marietta road, cost to be divided between county and township. Cleveland—Som. Center road in Orange township. Plans by County Engr. Frank R. Lander, hearing by commissioners July 1. Akron—Cuyahoga Falls-Middlebury rd., Portage Lakes dr., Tallmadge ave. ext. and Sec. D. Kenmore-Mogadore rd., \$225,000 in bonds sold. Chillicothe—Nine streets repaving, sidewalks, sanitary sewers; city will issue \$14,000 in bonds for its share of expense. Bond ordinance is pending; work already authorized. Zanesville—Blue ave. from end of present paving to the McIntire estate line will be paved at once by R. C. Burton, a private citizen. Gallon—Bucyrus-Leesville stretch of Lincoln highway west of Leesville, state will readvertise; \$30,000 in bonds already sold.

O., Columbus—There will be 60 street const. jobs under way this month, 39 of which have started. Plans and specifications for 61 others have been approved and notices are being served. In addition to these Council has asked for estimates on 63 more. Mr. Simpson, City Engr.

O., Columbus—Bids rejected for grad., bridging & pav. var. rds.

O., Dayton—Plan pav. & curb. 1,200 ft. S. Louis St., 2,000 lin. ft. cement curb, 4,000 sq. yd. vitr. brk. on conc., \$31,467.

O., Fremont—Ord. passed auth. \$30,000 st. bond issue.

O., Hamilton—Ord. passed auth. \$7,000 st. impv. and repair bonds.

O., Youngstown—Plan to pav. Smithfield Texas Alley and Malta Ave.

O., Portsmouth—Plan to pav. rd to Haverhill. Fed. aid secured.

O., Norwalk—Plan to pav. Wooster St.

O., Cincinnati—Council plans to impv. three streets.

O., Zanesville—The Co. Comrs. have adopted a resolution ordering a survey and estimate made for impv. eight-tenths of a mile on Upper Linden Ave. from the city limits to the north property line of the Roseville Pottery Co. There will be a 32 ft. roadway, including eight feet of street railway line with brick on a concrete base. Other street and road improvements are also under consideration here.

O., Toledo—Bids July 26 for \$125,000 bonds for impv. Summit st., \$12,000 bonds for purchase, condemning land for widening of Central Ave.

WATER SUPPLY

O., North Canton—\$24,300 Street Impv. bonds awarded.

O., Willard—The City Council has passed ordinances for the impv. of Dale Ave., Myrtle Ave. and a part of West Pearl St. It is expected to receive bids ten days after the publication of the ordinances.

O., Columbus—Ord. passed to impv. second alley north of Madison Ave.

O., Cumberland—Connecting link between paved road and Cambridge-Marietta Rd. is to be paved.

O., Cleveland—The following paving projects are pending: Springfield—Liberty St., ordinance pending. Bellaire—Elm alley, 2 blocks, notice given. Wilmington—Rombach and Fife Aves., council decides to pave. Marietta—Sidewalks on several streets. Bellaire—State attorney general approves \$80,000 bond issue for improvement of outlying streets. Service Director George T. Kreglow will invite bids. Road from here to Pipe Creek, County Commissioner Geo. Sandrock says same will be opened this summer. Cleveland—Carnegie Ave., plan to widen 56 ft. from E. 22nd to E. 55th Sts., being urged by Carnegie Ave. Association, W. A. Strong, Sec. Greenville, Pa.—Chambers Ave., council will invite bids for concrete base, asphalt top, 26 ft. Dover—Contract for Main-Market Rd., Mineral City section will be awarded by State June 30; bids rejected June 9. Willard—Bids to be invited for improving Myrtle, Dale and W. Pearl Sts.

O., Fredericktown—Ord. passed auth. \$7,500 J. and D. Street bonds.

Okl., Cleveland Co.—(P. O. Norman)—At the August primary election an issue of Road bonds, \$600,000, will be voted on.

Ont., Toronto—Board of Control requested Works Commissioner Harris to report as to the advisability and probable cost of extending Avenue Road to the northern limits of the city.

Ont., Dunville—Plans being prep. & bids about July 1 for conc. pavt. on Cedar St., \$46,000. E. Hinchcliffe, City Engr.

Ont., Listowel—Bids about July 15 conc. pavt. on Div., Main, Wallace and Inkerman Sts., \$40,000. Prices wanted on materials.

Ont., Petrolia—Hon. F. C. Biggs, Minister of Provincial Public Works and Highways, will be asked to designate the county road from a point south of Rutherford to Reece's Corners in Plympton Twp., a provincial highway.

Ore., Portland—Bids being called for const. Prairie City-Austin Natl. Forest Rd., 17.1 mi.; also Neskowin-Devils Lake Rd., 17 mi.

Pa., Easton—\$85,000 street bonds sold for opening new street.

Pa., Philadelphia—Council will soon ask for \$5,000,000 for pav..

Pa., Clairton—Bids about July 10 for grading streets.

Pa., Philadelphia—Pub. Wks. passed ord. for widening streets, 60 ft. minimum.

Pa., Germantown—Program adopted for repav. Ridge Ave., \$200,000; Chelton Ave., \$106,000; Germantown, \$146,000; Bellfield Ave., \$30,000; Greene St., \$42,000, \$689,000 available.

Pa., Titusville—Voted in favor of \$25,000 Paving bonds.

Pa., College Hill—\$60,000 Street bonds voted.

Pa., Johnstown—Co. Comrs. decided to contribute two-thirds of cost of impv. of 3,236 ft. hwy. in Yoder Twp.

Pa., Erie—Plans grad., pav. and curb. Chestnut St., \$25,720; also pav. Perry St., asph., \$36,850.

Pa., Monaca—An ordinance has been passed authorizing \$32,000 Paving bonds.

Pa., Pittsburgh—Ord. passed to impv. Manchester Ave. and East St., Northside, \$212,000. Also Kanim St., \$11,000; and const. sewers in six sts.

Pa., Mercer—Plan improv. & resurf. 4 mi. Sharon-Orangeville Rd.

Pa., York Co.—\$1,000,000 road bonds offered July 10. Fred S. Bartenschlager.

Pa., Erie—Ord. passed to grade, curb, drain and pav. Twenty-sixth St.

Pa., Erie—Paving 1½ mi. St. Hwy. in Boro. Pollock postponed until next year. Lack of finances.

Pa., Erie—Co. Comrs. plan to obtain Old Massassauga Point or Head Rd. for boulevard.

Pa., Erie—Council plan \$88,500 bond issue for const. viaduct in Glenwood Park, pav. in vicinity of Academy High School and const. relief sewer in Mill Creek Valley.

Pa., York—No contracts will be awarded for the present until vacancy in Council is filled.

Pa., Clarion—\$300,000 road bonds awarded to Graham, Parsons & Co., Philadelphia.

R. I., Providence—Resolution passed to widen Valley St. to layout Fifth St.

R. I., Providence—Petition submitted to curb Cactus St.

S. C., Spartanburg—City will extend street paving. The Mayor.

S. C., Charleston—New hwy. planned by extending King St.; also viaduct planned.

Tex., Abilene—Plans being prep. for street pav., perm. type, \$90,000. W. A. Rainey, Engr.

Tex., Austin—Plans being prep. for const. Hwy. No. 20-A, gravel surf. and conc., \$36,685. O. Leonard, Engr.

Tex., Brenham—Plans revised for const. hwy. in Washington Co., \$1,280,607.

Tex., Brownsville—Plans being prep. for hwy. in Cameron Co., conc., \$350,000. Oscar C. Dancey, Engr.

Tex., Edinburg—Plan Hwy. No. 12 in Hidalgo Co., bit. topping, \$602,208. P. S. Devine, Pharr, Tex., Engr.

Tex., Eldorado—Plans being prep. for const. Hwy. No. 4 in Schleicher Co., bit. top, \$49,800. Gibb Gilchrest, Engr.

Tex., Fort Worth—Contemp. const. of Rd. No. 10 in Tarrant Co., gravel surf. and conc., \$120,527. R. V. Glenn, Engr.

Tex., Gonzales—Bids soon for const. rd. No. 29 in Gonzales Co., \$60,000. Chas. F. Tom, Engr.

Tex., Junction—Rd. approved for const. gravel surf. and conc., \$48,060.

Tex., Marshall—Plans approved for const. rd. No. 8 in Harrison Co., gravel surf. and conc., \$129,905.

Tex., Orange—Plans being prep. for const. Hwy. No. 3 in Orange Co., one course re-conc. pav., \$320,950. J. E. Johnson, Engr.

Tex., Paris—State Hwy. plans approved for two rds., No. 19 and No. 5, in Lamar Co., \$108,000 and \$150,000.

Tex., Rockwell—Plans approved for const. Rd. No. 1 in Rockwell Co., conc. John A. Tacht, Engr.

Tex., San Angelo—Bids being called for mac. and gravel rd., \$160,000. Gibb Gilchrest, Engr.

Tex., Dallas—All outstanding pav. contracts cancelled and new bids called for pav. South Lamar St.

Tex., Canton—\$7,000 street impv. bonds awarded.

Tex., Boston—Will vote June 24. \$65,000 road and bridge bonds.

Tex., Falls Co.—Voted \$30,000 Road Dist. No. 5 bonds.

Tex., Cameron—\$350,000 road bonds voted.

Tex., Dallas—Proposed gravel road from Fort Worth Pike and Davis St. approved by Co. Comrs., 5,600 ft. long, 35 ft. wide.

Tex., Sequin—Guadalupe Co. Rd. Dist. No. 5 will grade and gravel 3.7 mi., and hard surface 19.1 mi. in county at cost of \$120,000. Hess & Skinner, Engrs., Dallas, for 3.7 mi. J. B. Williams, Co. Judge.

Tex., Johnson City—Plan hwy. in Blanco Co., gravel surf. and conc., \$125,000.

Tex., Karnes City—Karnes Co. Rd. Dist. No. 4 will const. 14.54 mi. 1-in. bitum. surf. on gravel and caliche base; 1,460 sq. yds. pavement; 1,400 cu. yds. concrete. Est. cost, \$325,000. O. N. Powell, Engr., Kennedy, Tex.

Tex., Laredo—Bonds in sum of \$150,000 voted on favorably in Webb co. for purpose of bldg. hwy. from Laredo to Miranda City oil fields.

Tex., Sequin—Plans being prepared surf. 1½-in. bit. top, 15.7 mi. State Hwy. 3-A, \$72,437.

Tex., Orange—Prep. plans grad. & pav. 5.87 mi. St. Hwy. 3, \$320,956. J. E. Johnson, Co. Engr.

Tex., Hall Co. (P. O. Memphis)—An election has been requested to vote on an issue of road bonds, \$500,000.

Tex., Jones Co. (P. O. Anson)—An election will be held on June 23 to vote an issue of 5½% bonds, \$400,000.

Tex., Baird—Attorney General approved \$14,000 street bonds and \$6,000 water works.

Tex., Cook Co.—\$70,000 Road Dist. No. 2 bonds awarded.

Utah, Ogden—Fed. Aid being sought for road from Brigham City.

Utah, Ogden—Will pav. Canyon Rd. from Washington to Jefferson Ave.

Utah, Salt Lake City—Plan to procure right of way for State Rd. through Echo Canyon.

Va., Petersburg—Approx. \$2,000,000 will be expended on impvts. here during next 12 months.

Va., Lexington—\$85,000 Street bonds voted.

Va., Norfolk—Norfolk Co. Rds. and Bridges Comn. will impv. Swamp Rd.; const. Atlantic Ave. from Va. Ry. crossing to Edmonds' corner; macadam surface; const. permanent surface on Swamp Rd. from Edmonds' corner to intersect of Great Bridge Blvd. at Oak Grove Church, conc. Plans issuing \$110,000 bonds.

Wash., Hoquolone—Bids rejected for filling M. St., between Fifth and Spruce Sts.

Wash., Spokane—\$1,000,000 Hwy. Imp. program planned.

Wash., Seattle—The Dexter-Horton National Bank, of Seattle, has been awarded an issue of 6% Olive St. Condemnation bonds to the amount of \$100,000 at 101.27.

Wash., Yakima—Prep. to ask bids for extra pav. to make South Third St. regulation width.

Wash., Spokane—Petition submitted for grad., curb. and sidewalk on Olympic Ave.

W. Va., Lexington—Voted \$85,000 road and street bonds.

W. Va., Glen Jean—Bids being called for const. rd., grad., drain. and pav. J. K. McGrath, Fayetteville, Engr.

W. Va., Charleston—Coun. discusses var. paving proj.

W. Va., Bluefield—Indications favorable for impv. of Mountain Rd. around New Baptist College during this summer.

Wis., Milwaukee—City will pave about 200 alleys this summer if plans of Bd. of Est. are carried out by City Council.

Wis., Milwaukee—State will const. approx. 200 mi. concrete hgwys. during summer and fall in Milwaukee and adjoining counties. A total of about 400 mi. paved road will be built this year. A. R. Hirst, St. Hwy. Comr.

Wis., Rock Co.—An issue of hwy. impv. bonds, \$300,000, has been awarded to Messrs. E. H. Rollins & Sons, of Chicago, at a premium of \$10,734=103.57.

SEWERAGE AND SANITATION

Ala., Selma—City may install storm sewer. J. Hooper Adams, Chairman Sanitary Commission.

Ark., Newport—City Council plans const. storm sewer. Survey being made.

Ashtabula—City Manager Cotton advises the council that the city should immediately take action for the installation of a sewage disposal plant. A conference will be held between Cotton the city engineering dept. and the council committee on sewers.

Cal., Alhambra—\$50,000 sewer bonds voted.

Cal., Hollister—Vote to be taken soon on bond issue for construction sewerage system. C. F. Sloan, Santa Fe Bldg., San Francisco, Consult. Engr.

Cal., Long Beach—A. L. Ferver, Dir. Pub. Serv., reports that plans for addition to sewage disposal plant at entrance to harbor will be completed within 60 days.

Cal., Riverside—Resolution adopted by City Council to const. san. sewer in Hayes, Myers, Taft, Galloway, Roosevelt, Magnolia and other streets in Village of Arlington.

Connaut—Representing Wm. H. Walker, Atty. R. E. Mygatt has appeared before the city council for the second time asking that immediate action be taken to abate the nuisance of the open sewage which flows through a ditch across the property in North Connaut which Mr. Walker is preparing to open up as a new subdivision of the city.

Fla., DeLand—City will vote on issuance of \$90,000 of sewer bonds. J. B. McCrary Co., Engrs., Atlanta, Ga.

Fla., Miami Beach—An election has been called for July 25 to vote on \$125,000 Sewer bonds. G. E. McCas-kell is attorney.

Fla., Key West—City contemplates const. of san. and domestic sewerage sys. Est. cost, \$620,631. C. S. Williams, Acting City Clk.

Ga., Tifton—City engaged Robert & Co., Atlanta, Ga., as engineers for sewer extension and other improvements provided by recent bond issue. The Mayor.

Ga., Atlanta—Will begin Lloyd St. sewer soon.

Ill., Elmwood—Plans being prep. for const. sewers, \$23,000, tile and brick. Edwin Hancock, 2047 Ogden Ave., Chicago, Ill.

Ill., Decatur—\$410,000 san. sewer bonds to be sold June 26.

Ind., Indianapolis—Bids July 11 for \$500,000 bond issue for cost of current work on sewage disp. plant.

La., Cedar Rapids—City Comm. contemp. const. sewer. F. F. McCauley, Engr.

La., Boone—Bd. Supvrs. contemplate storm sewer.

Ky., Henderson—City contemplates constructing complete system of sewerage; preliminary plans being prepared.

Md., Cumberland—Plans being prep. for const. storm san. sewers, \$75,000. R. J. Rizer, Engr.

Md., Harve de Grace—Election will be held to vote on issuance of bonds for const. of sewer system. Mayor confident \$35,000 will build sewer.

Mich., Marquette—San Lat Sewer—Contemp. on H-matite st., bet. 2d st.-Specular st. 310' 6" vit. pipe. Mary A. Hogan, City Clk.

Mich., Lansing—Resolution passed to const. sewer in Teel Ave. and Tisdale St.

Minn., West Concord—Sewers—Maturity indef. Engr., Louis P. Wolff, 1000 Guardian Life bldg., St. Paul, has made survey. R. C. Jones, City Clk.

Minn., Winona—Water Mains—Sewer Dist. 3. Work to start soon. Geo. W. Hoffman, City Clk. E. E. Chadwick, City Engr.

Minn., St. Charles—Plans new sanitary sewerage sys. with Imhoff tank, \$30,000. C. L. Pillsbury Co., 1200 2nd Ave., S. Minneapolis, Engrs.

Minn., Montgomery—Plans new sanitary sewerage sys. in var. sts., \$50,000. Druar & Milinowski, 500 Globe bldg., St. Paul, Engr.

Minn., Harmony—Plans new sanitary sewerage sys. in var. sts., \$40,000. L. P. Wolff, 100 Guardian Life Bldg., St. Paul, Engrs.

Minn., Chaska—Plans sewerage sys., \$30,000. J. B. Connolly, Clk. J. W. Shaffer & Co., 917 New York Life Bldg., Minneapolis, Engrs.

Miss., Durant—City will impv. sewer system; \$20,000 bonds voted.

N. J., Camden—Street Comm. has recommended to City Council that sewer be constructed for elimination of Baldwin's Run in E. Camden at cost of \$275,000. Mr. Farnham, City Engr.

N. J., Jersey City—Vice-Chancellor Griffin has signed order permitting const. of intermittent sand filter and chlorinating plant to be used in connection with sewage disposal plant at Boonton.

N. Y., Boro. Brooklyn—Resolution passed to const. sewer in 57th St., Ave. Q, Ashford St., Hegeman Ave., E. Ninth St. from Ave. K to Ave. L.

N. J., Newark—Plan to establish sewer in South Orange Twp.

N. Y., Boro. Brooklyn—Resol. passed to const. sewer in East 17th St., New York Ave., East 10th St., 55th St. and 11th Ave., Brooklyn Ave. and Carroll St.

N. Y., Boro. Bronx—Resol. passed to const. sewer in Mace Ave., Pierce Ave., Hering Ave., Yates Ave., Liebig Ave., and Kingsland Ave.

N. Y., Boro. Queens—Resol. passed to const. sewers in Tranconia Ave., Joslin St., Brown Pl., Whitlock Ave., Juniper Ave., Fifth Ave., Bittmar St., Caldwell Ave., and Orontes St.

N. Y., Syracuse—New plans will be prep. for impv. Turnace Brook by intercepting, Sewer Bd.

N. Y., Gloversville—Plans and specifications completed by Harrison P. Eddy, of Metcalf & Eddy, Cons. Engrs., Boston, Mass., for impvts. to sewage disposal plant so. of city. Est. cost, \$100,000.

N. Y., Glen Falls—\$225,000 bonds voted for about 18 mi. san. and storm sewers. L. G. Boynton, Clk.

N. Y., Massena—City voted on \$65,000 bonds for storm sewers in various streets. G. W. Dawes, Vil. Pres.

N. Y., Queens Boro.—Final plans and specifications have been sent to Corp. Counsel's office for const. of trunk sewer for Blissville section of Long Island City. Sewer will cost upwards of \$150,000.

N. Y., Syracuse—City may expend between \$300,000 and \$400,000 for a digestive system to dispose of sludge from proposed sewage disp. plant. Ord. to this effect introduced by Alderman F. J. Cooney.

N. Y., Wilson—Bonds awarded for const. sewerage sys. and disp. works and water sys., \$114,000.

N. Y., Syracuse City—Considering impv. sewer sys.

N. C., Fayetteville—City voted \$300,000 bonds for constructing sewerage and water works system. E. R. MacKethan, mayor.

N. C., Taylorsville—It is proposed to construct sewerage and water works systems. \$75,000. Carolina Eng. Co., Wilmington, engineers.

N. C., Kernersville—City voted \$47,000 bonds for constructing sewerage system. Carolina Eng. Co., Wilmington, engineers.

O., Ironton—Resolution passed to const. san. sewer from Walnut alley.

O., Cleveland—Three residents of E. 135th St., in the extreme northeastern part of Cleveland, threaten to begin injunction proceedings to prevent the use of a surface drainage pipe in that street as a sewer. Residents of E. 104th St. are protesting against the dumping of raw sewage in the lake only a few feet from shore. F. W. Jones, sewage disposal division of the city engineering dept., promises to remedy conditions in a few days.

O., Port Clinton—W. J. Sherman Co., Toledo, O., have been assigned the work of preparing prelim. plans and estimates of cost for san. sewers, intercepting sewers and sewage disposal for Pt. Clinton.

O., Cleveland—City plans new sewage disposal plant. Est. cost, \$240,000. F. A. Pease Engr. Co., Marshall Bldg., Engrs.

O., Spencerville—Prelim. plans for sewage disp. plant. Geo. Champe, 229 Valentine Bldg., Toledo, Engr.

O., Euclid Village—Plan san. sewer. Bids about July 3. F. A. Pease, 804 Marshall Bldg., Cleveland, Engr.

O., Perrysburg—Bids being called for sewer construction.

O., Westerville—At a recent meeting of the City Council the engineering company, the Jennings-Lawrence Co., Hartman Bldg., Columbus, submitted plans for a sewerage disposal plant for Westerville. This is to consist of three Imhoff tanks of concrete, each 11x20 ft., with a total depth below water line of 22 ft. 10 ins.; four contact fillers, walled and floored with concrete, the area of each to be about one-eighth of an acre. The estimate of cost of the system is \$42,600. The council is considering the report with the engineers and the city manager.

O., New Philadelphia—City Solicitor E. E. Lindsay is advised from Columbus that the State Industrial Commission will probably accept the city's improvement bonds for \$188,200 for sanitary sewers and paving. This will permit these improvements to go forward this summer.

O., Toledo—Ord. passed to const. local san. sewer Dist. 1434 in Main Sewer Dist. No. 2.

O., Bellefontaine—Thos. S. Weymouth has again sued the city of Bellefontaine for damages, asking \$6,000 and alleging the pollution of Blue Jacket Creek. The people of Bellefontaine voted a special bond issue on April 4, of this year, but the work has not yet been begun to const. the main line trunk sewer contemplated.

O., Cleveland—These municipal projects are pending: Wilmington, for a suitable system for this village; Stow Corners (Summit county) for the big sewer through here, plans by County Sanitary Engr. E. D. Marston, contracts for which are to be awarded as soon as bonds are sold; Kenmore, for a sewage disposal plant on which immediate action has been urged by the State Bd. of Health; Vermillion, const. plant bonds in the sum of \$12,000, for structing water lines to the Stove which have been sold; Hamilton, const. structing sanitary sewers in the Armondale allotment at a cost of \$40,000; Bremen, for electric power and lights for this village, negotiations for which are now pending between Mayor Young and Samuel McCracken, the Fairfield county representative of the Ohio Power Co., and on which a bond issue of \$30,000 will be necessary.

O., Akron—Will vote \$3,000,000 bond issue in Aug. for new sewage plant.

O., Cleveland—City contemp. sewer-ing Dodge St.

O., East Cleveland—The question of issuing bonds in the sum of \$130 for an incinerator will be submitted to the voters of East Cleveland at the primary election of Aug. 8.

O., Greenville—The council will sell \$2,500 in bonds for the construction of storm water sewers.

O., Columbus—Resolution passed to const. sewer in alley east of Cleveland St. and const. sludge disp. area at sewage disp. wks.

O., Elyria—Council committee recommends a sanitary sewer in Garvin Ave. and a 15-inch storm sewer on E. River St. A petition was received by the council asking for a sewer and water pipes in Beach from Hazel to Turner Sts.

O., Columbus—Plans const. sewer in Clinton No. 2. Sewer Dist., 4.759 ft. 12-24-in. and 32.865 ft. 6-in. pipe, \$81,000; 7.636 ft. 8-in. pipe, \$15,000.

O., Port Clinton—Comrs. plan to establish san. sewer dist. for Lakeside.

Okla., Stroud—City will const. san. main sewers and sewage disposal plant; probably vote on bonds. City, Mo., Cons. Engrs.

Pa., Erie—City Street Director Elchhorn announces that plans are being prepared by the city engineering department for a sanitary sewer system in Beverly place, west of the city. Blue Prints will be completed as soon as the plans for the proposed west interceptor are approved by the State Bd. of Health.

Pa., York—Plans and specifications for proposed additions to sewage disposal plant completed by Fuller & McClintock, Cons. Engrs., New York City. Dr. Grove, Supt. of Dept. Pub. Safety, recommended adoption of the plans and specifications, which will be submitted to Dept. of Health for approval.

R. I., Providence—Resolution passed to const. sewers in var. streets.

R. I., Olneyville—Resolution passed to condemn land for right of way for new Mantion sewer.

S. C., Honea Path—Ciquola Mfg. Co. will install sewers in connection with construction of 130 houses for employees. J. E. Strrine & Co., Engrs., Greenville, S. C.

S. C., Spartanburg—City will extend sewer system. The Mayor.

S. C., Charleston—Bids being called for const. drains.

W. Va., Charleston—The council has voted to employ an expert to select a site and prepare specifications looking to the installation here of an incinerating plant.

Wis., Kenosha—Bids being called for const. sewers.

LIGHTING AND POWER

Fla., Leesburg—City plans to const. municipal power plant.

Fla., Coconut Grove—\$60,000 Light and Sewer bonds voted.

Kan., Parsons—Power plant to be const. on Neosho River, \$1,500,000.

Mich., Caseville—\$6,000 voted for Power Line Extension bonds.

Neb., Douglas—Will vote July 11 on Electric Light System bonds, \$5,500.

Newfoundland—Plans prep. for 235,000 h.p. water power proj. in Humber Valley, \$7,000,000. Contract to be awarded soon.

N. C. Asheville—Meeting held to discuss water power problem of southern mountains.

O. Upper Sandusky—Ord. passed to prep. plans for const. city's electrical distributing sys. Will const. sys. and purchase current for 9 mi. streets. System to cost \$90,000 to \$100,000.

O. Delphos—This village will readvertise for the electrical current required by the village. Upon this announcement the injunction suit aimed to prevent the awarding of the contract to the Paulding Service Co. was dismissed.

O. Van Wert—The Council has authorized a new lighting system for the city and provided for a \$4,000 bond issue for the city's share of expense.

O. Toledo—Resol. passed to impv. Bennett Rd. and Clara Ave., Bennett Rd. and Dryden Drive and Eleanor Ave. by lighting.

Okla., Gage—\$27,000 light plant bonds sold.

S. D., Estelline—\$16,000 light sys. bonds awarded.

Tex., San Benito—Voted to issue \$95,000 elec. lt. bonds.

Wash., Deer Park—Mark F. Mendenhall, Sr., president of the Mount Spokane Power Company, of this place, has made application to the public service commission at Olympia for a franchise to operate an electric railway between Deer Park, Clayton and Loon Lake to Springdale.

Wash., Walla Walla—Mayor Hill has announced the appointment of five citizens to investigate the possibilities of a power plant on Mill Creek. The committee consists of Dr. O. J. Keating, Mr. Henry Osterman, Mr. A. J. Gillis, Mr. Harvey McDonald, Mr. William Kirkman.

WATER SUPPLY

Ariz., Prescott—Bids will be asked in about 30 days for const. of the Banning Crk. dam, to be built as an adjunct to Prescott water system. It will be of concrete const., 20 per cent. cyclopean mas. type, 292 ft. long, with wing wall sustaining the spillway 225 ft. long, 62 ft. high, 6 ft. at top with base, 42 ft. Est. cost, \$150,000. City Engr., A. J. Kline, has prepared plans.

Cal., Grand Junction—Plans, specifications and estimates are in progress for water works improvements including new reservoir. Approximate cost \$150,000. George Garrett, city manager.

Cal., East San Diego—City Engr. has reported to City Council that est. cost of proposed water system will be \$260,000. E. A. Rowe, Hydr. Engr., representing J. B. Lippincott, water expert, reported that distributing system as planned is scientifically correct.

Cal., Santa Barbara—Montecito Co. Water Dist., having ests. made as to cost of installing and maintaining distributing sys., in newly created district. City Council, of Santa Barbara, considering proposal to sell district water from city's supply.

Cal., Grand Junction—Prep. specifications and estimates for waterworks improvements, incl. new reservoir, \$150,000. G. Garrett, City Mgr.

Del., Newcastle—Ord. passed auth. \$15,000 Water and Light bonds.

Fla., Auburndale—\$30,000 bonds voted here for water works. W. L. Mason, Clk.

Fla., West Palm Beach—City contemplates construction of high pressure water system for fire control, and water front improvements. \$100,000. The Mayor.

Fla., Starke—City will enlarge and improve water works; voted \$36,000 bonds. The Mayor.

Fla., Starke Co.—\$36,000 Water bond issue voted.

Fla., Deland—City will vote on issuance of \$116,000 of water works bonds. J. B. McCrary Co., Engrs., Atlanta, Ga.

Fla., Starke—City voted \$36,000 of bonds and will enlarge and impv. waterworks. The Mayor.

Ga., West Point—City voted \$25,000 of bonds to extend water works system. Robert & Co., Engrs., Atlanta. The Mayor.

Ga., Tifton—City has engaged Robert & Co., Atlanta, Ga., as engineers for water main extensions provided for in recent bond issue. The Mayor.

Ill., Chadwick—Bids about July 7 for const. water main.

Ill., Elmhurst—Plans being prepared for water mains. Edwin Hancock, Engr., 2047 Ogden Ave., Chicago, Ill.

La., Wacoona—City plans water works and sewer const. W. E. Buell Co., 2057 Davidson Bldg., Sioux City, Engrs.

La., Coons Rapids—\$15,000 Water Works bonds voted.

La., Marshalltown—Consulting Engineers Alvord and Burdick, of Chicago, have filed report of survey and recommended expenditure of \$355,000 to completely rebuild water plant.

La., Oskaloosa—Bonds amounting to \$230,000 were voted for purchase of water works plant, and \$70,000 for water works improvements.

Ky., Newport—City has decided to enter into contr. with Geo. Hornung, Civ. Engr., to supervise installation of a 6,000,000 gal. pumping engine at Newport pumphouse.

La., Lake Arthur—Town will const. water works and purchase power plant for electricity; \$50,000 bonds voted.

La., Alexandria—\$350,000 Water, Sewer and Fire Equipment bonds voted.

Md., Cumberland—City will extend feed main, probably about 8,000 ft. of 36-in. pipe line. Jas. H. Fuertes, 140 Nassau St., New York City, Cons. Engr.

Mich., Detroit—Essex Border Utilities Comm. plans to supply border municipalities with filtered water which will come to Windsor, Ont., by gravitation through 36-in. pipe. J. C. Keeth, Engr. Plans will have capacity of 35,000,000 gals.

Minn., Lake City—Water Main Sys.—Work to start soon. 85 blks., 32,000 lin. ft. 6-in. water mains, 750 ft. 4-in. mains, 61 fire hydrants, 42 cut-out valves. Ed. Burghardt, City Clk. L. P. Wolf, 1000 Guardian Life Bldg., St. Paul, Consult. Engr. Est., \$53,000.

Minn., Wabasso—Vil. Coun. contemp. ext. to water mains to mature about September.

Minn., Lake City—City Council has decided to lay 85 blks. water mains for purpose of providing additional fire protection and to give all residences in city opportunity to have city water. Est. cost of impvt., \$53,000. Plans call for laying 32,000 lin. ft. 6-in. water mains with exception of 750 ft. 4-in. mains on Park St.; also for 61 fire hydrants in addition to the 84 now in, and 42 cut-out valves.

Minn., Roylton—Bids about June 30 for const. waterworks.

Minn., Lake City—Plans water mains in about 85 blocks, 32,000 lin. ft. 6-in. and 750 lin. ft. 4-in. c. i. pipe, etc., \$50,000. L. P. Wolf, 1000 Guardian Life Bldg., St. Paul, Engr.

Minn., Montgomery—Plans water main extensions and appurtenances, \$20,000. Druar & Milinowski, 500 Globe Bldg., St. Paul, Engrs.

Minn., Eveleth—Plan to extend water mains to city limits near Leonidas on Fayal Rd.

Mo., Versailles—\$81,000 bonds sold here; \$60,000 for water works and \$21,000 for sewers.

Mont., Conrad—Making plans waterworks. \$15,000. C. W. Swearingen, 925 3rd Ave. N., Great Falls, Engr.

Neb., Mend—\$8,500 Water Extension bonds voted.

Neb., Hardville—Voted \$2,900 Water Works bonds.

Neb., Hay Springs—About to revote \$18,000 Water bonds.

Neb., Hordville—An election was held recently to vote an issue of 20-year water works bonds to the amount of \$2,900. These bonds will be optional after 10 years.

Neb., Thefford—Plans pumping station and waterworks system, \$20,000 bonds sold. J. Figard, Secy. Vil. Bd.

N. J., Red Bank—Bids for installing water pumping equipment in Manasquan borough were rejected.

N. J., Ventnor—Ord. creating bond issue of \$200,000 for impvts. to water works, passed on second reading.

N. Y., Johnson City—Water Bd. plans to lay main, \$25,000-\$30,000. C. F. Johnson, Chairman.

N. Y., Canandaigua—Installation of additional water main from reservoir to city mains is urged.

N. Y., Mumford—Plans prepared for water system for Mumford Water District. Bids about Aug. 1. \$26,000. R. E. Gaskin, Engr., Cutler Bldg., Rochester, N. Y.

N. Y., Perry—Village plans extending water mains and making slow sand filtered water for Silver Lake Institute.

N. Y., Niagara Falls—Plan \$100,000 water system. William Bennett, 6th and Walnut Sts., Engr.

N. Y., Parma—Plans being prepared for water system for Collamer Water Dist., \$26,000. Bids about Aug. 1.

N. Y., Hamlet—Taxpayers plan establishment of water district and construction of eight 6-inch water mains. Engineer not announced.

N. Y., Buffalo—City contemplates const. of filtration plant, plans for which include large coagulating basin, 304x408 ft. long and 24 ft. deep. Basin will hold approx. 20,000,000 gals. It is divided into two separate parts so that either may be drained and cleaned without taking other out of service. There will be 40 filter units, each having normal daily capacity of 4,000,000 gals. Low lift pumping station will contain 5 electrically driven centrif. pumps with total daily capacity of 240,000,000 gals. There will be 2 tunnels, approx. 12 ft. sq., one for conveying water from present intake to filter plant, and other to carry filtered water from filter plant to Ward pumping sta. In 2 huge conc. basins there will be over 1,000 conc. columns for support of overhead struct., large number of which will be 25 ft. long. There will be approx. 340,000 cu. yds. earth excav. Much of this excav. will be taken from area now under water and used as backfill in vicinity of filter plant.

N. Y., Syracuse—City plans to lay 4,000 ft. mains in various streets at cost of about \$75,000. T. H. Mather, City Hall, Engr.

N. Y., Syracuse—Plan to extend water mains to Bellevue Ave.

N. Y., Boro. Queens—Petition submitted for extension of Catskill water sys. into Morris Park sec.

N. C., Vass—Installation of water works is planned.

N. D., Fargo—Plans approved for const. of water mains. Job 2204, Water Main Dist. 2, 15th St. N. from 3rd to 5th Ave.; Job 2205, Dist. 1, 15th St. S. from 1st Ave., 2nd Ave., 3rd to 4th Ave., 16th from Front St. to 2nd Ave. Job 2206, Dist. B, 11th St. S.—10th to 11th Ave. Job 2203, Dist. 1, 14th from 10th to 11th Ave. A. R. Watkins, City Clk.

O., Columbus—Proposition made to issue bonds in sum of \$30,000 for purpose of improving and maintaining water works system.

O., Dayton—Property owners in the new Dodds addition have petitioned the city commission to extend both water and sewer lines to the addition.

O., Toledo—Plan to const. 10,000,000 gal. sedimentation basin and lay 11,750 ft. 24-in. B. C. I. pipe. Contr. will be awarded about July 6.

O., Columbus—Franklin Co. plans to lay 18,740 ft. 6-12 in. main, Clinton 1 Highland Park Contr. \$37,000. E. G. Bradbury, 124 E. Long St., Engr.

O., Caldwell—Ord. passed auth. \$3,000 Water bonds.

O., Alliance—Ord. passed to issue \$15,000 Water Works bonds.

O., Euclid Village—Bids being called for const. of water mains. F. A. Pease, Marshall Bldg., Cleveland, Engr.

O., Hamilton—Will soon call bids for water meters. No money limit imposed.

O., Lima—City prep. to purchase 1,000 water meters for installation along new water lines.

O., Creston—The Morris Knowles, Inc., Cleveland and Pittsburgh, has submitted to the city council preliminary studies, sketches and estimates for a modern water system for Creston.

O., Norwood—Ord. passed auth. \$8,450 for engine and pumps.

O., Franklin—\$16,500 Water Works bonds awarded to Stacey & Brown, Toledo.

O., Archibald—Bd. Pub. Affairs plan to drill 8 in. well for waterworks plants; bids about later part June.

O., Wellsville—The Council has delayed the impv. of the waterworks plant here pending a solution of the financial problems. The amount in hand, \$240,000, is not sufficient to meet the cost.

Okla., Ponca City—City will extend water works system; install 1,000 gal. per min. centrif. pump, 250 ft. head, 100 h.p., 2,200 volt, 3 phase motor; approx. 1,200 ft. 10-in. cast iron pipe.

Okla., Thomas—Surveys being made for pumping plant and wells to cost \$50,000. H. G. Olmsted & Co., 415 Oil Exchange Bldg., Okla. City, Engrs.

Ont., Niagara Falls—Water Comrs. authorized construction of water mains on following streets: Wilmott St., from First to Fifth; McGill, Fourth to Centre; Third Ave., Bridge to Hamilton.

Ont., Port Credit—A detailed plan of the proposed waterworks system was submitted to the Town Council by William Storrie, of Gore, Nasmith & Storrie, Consulting Engineers, Toronto. Estimated cost, \$120,000. Plans have been fully approved by Provincial Board of Health.

Ont., Oshawa—Board of Water Commissioners decided to grant the request of residents of Simcoe St. South, Cedar Dale Village, for a water supply from the town's mains. Commission decided to construct water mains on Ritson Rd., between Eulalie and Olive Aves.

Ont., Glencoe—Wabash Ry. Co., Exch. Bldg., St. Louis, Mo., plans water filling station, 3 mi. pipe line and electric pumping outfit, here. O. W. Carrick, care Wabash Ry. Co., Decatur, Ill., Engineer.

Ont., Thessalon—Plans to install motor driven and gasoline driven pumps, 3 stage, centrifugal, in water works pump house. J. O. Coulter, City Clk.

Ore., Coquille—About to vote \$20,000 Water System bonds.

Pa., Pittsburgh—A filter plant to serve the north boroughs must be installed by the Ohio Valley Water Co., according to a statement by Geo. W. Case, chief engr. of the American City Engr. Co. Case had made a thorough investigation of the water supply for the district.

Pa., Philadelphia—City will soon take bids for furnishing and installing pumping units at Larners Point Pumping Sta., \$35,000; also for quantity of patent sleeves, stop valves and water pipe, \$12,000. C. E. Davis, City Hall, Engr. City will also take bids in near future for installing ash and coal-handling equipment at Queens Lane Pumping Sta., \$25,000.

Pa., Philadelphia—Soon takes bids addition to filtration plant, laying pipe, etc. \$200,000. C. E. Davis, City Hall, Engr.

Que., St. Raymond—Plans being prepared for water works system to cost \$250,000 for town. Engr., Lapointe, Baile, St. Paul.

Que., Hull—Voted \$59,000 bonds to extend water works and sewer systems. T. Lanctot, City Engr.

Que., Montreal—Dir. of Pub. Wks. decided to recommend to the executive committee the laying of a 48-in. water main from the Point St. Charles Pumping Station to a point in the vicinity of the Place Viger Hotel, a distance of about two miles.

S. C., Honea Path—Chiquola Mfg. Co. will provide water works facilities for 130 new houses for employees. J. E. Sirrine & Co., Engrs., Greenville, S. C.

S. C., Spartanburg—City will extend water mains. The Mayor.

Tex., Electra—Attorney General's Dept. has approved bond issue of \$80,000 for water works and \$20,000 for sewers.

Tex., Chillicothe—Will develop test wells for city water supply. Will purchase pumps.

Tex., Abilene—An issue of Water Supply bonds is being contemplated.

Vt., Petersburg—City will extend water and sewer systems, const. sts.; \$200,000 available. L. Brownlow, Mgr.

W. Va., Fairmont—City may expend \$1,000,000 for water supply system. J. Clyde Morris, Water Comr.

Wn., Monroe—Bids will soon be asked for water works system. Detailed plans and specifications being completed by Miller Engr. Co., Burke Bldg., Seattle. W. H. Clark, Town Clk., Monroe. Proj. will be a 1,000,000 gal. conc. reservoir, laying 6 mi. 8 and 10 in. wood stave main pipe line; also 32,500 lin. ft. 4, 6 and 8 in. wood stave distribution lines, 425 cu. yds. conc., 8,000 cu. yds. excav. in main line and 6,000 cu. yds. excav. in distribution system.

FIRE

Ala., Mobile—Motorization of fire department is urged and it is proposed to purchase eight pieces of apparatus.

Conn., New Britain—Chief Noble in his annual report recommends the following: Purchase of a 750-gal. pumper and combination truck as a spare piece of apparatus because present apparatus has been held up for repairs on the average of ten or twelve days; purchase of a runabout automobile for the assistant fire chief; installation of private fire alarm boxes in schools and public institutions, by means of which more equipment than usually might be detailed, when alarms from these places are turned in.

Ga., Atlanta—The finance committee of the City Council has voted an appropriation of \$3,500 for the purchase of property on which to build a new fire engine house to serve the north-east section of Atlanta. Mr. Cody is fire chief.

Ill., Springfield—Permission to issue \$7,000,000 first lien and refunding mortgage 5½ per cent. gold bonds was asked of the Illinois Commerce Commission by the Public Service Co. of Northern Illinois.

Ill., Ottawa—A \$20,000 bond issue for the purchase of fire equipment was enforced by the Rotary Club.

Mass., Pittsfield—New England Insurance Exchange engineer recommends in report purchase of 55-ft. combination city service ladder truck equipped with chemical tank, also purchase of hose wagon loaded with 1,000 feet of 3-inch hose, the total supply of hose to be 13,000 feet.

Mass., North Attleboro—Finance committee has named sub-committee to arrange for motorizing of entire fire department.

Mass., New Bedford—Chief E. F. Dahill recommends purchase of land for sites for erection of fire stations. The city is urging purchase of two new city service trucks.

Mich., Grand Rapids—Discard of the seven steam pumps now in the fire dept. and the purchase of gasoline pumps which cost about \$12,500 each is urged as an economical measure by George T. Boughner, fire marshal. The fire dept. official contends that one gasoline pumper will save the city about \$3,500 a year over the cost of operation of a steam pumper.

Mich., Holland—Fire department, it is reported, will be completely motorized.

N. M., Hot Springs—After three devastating fires in two weeks the Town Council of Hot Springs has appointed a fire marshal with power to organize a volunteer company of fire fighters. Also fire buckets painted red, axes and ladders were ordered provided by the city to be kept in the municipal building in the center of the town. An effort will be made to procure a chemical cart immediately.

N. J., Hillsdale—Women's fire department has been organized in this city.

N. Y., Addison—Phoenix Hose Co. plans to purchase two chemical machines for use in extinguishing fires.

N. Y., Oceanside—Vote to be taken June 28 on appropriating \$7,500 requested by firemen for maintenance of their department during coming year.

N. Y., North Tonawanda—The Council has rescinded a resolution to buy two Nash motor trucks and adopted one to purchase two Reo trucks from the Echo Motor Co. at \$1,995 each.

N. Y., Middletown—The Liberty fire dept. is raising a \$3,000 balance necessary to paying for an \$8,000 fire truck which has already been ordered from the Seagrave Co. for delivery Aug. 15.

N. Y., Greece—Ridge Road Fire Dist. (P. O. North Greece)—A \$10,000 fire truck bond issue has been favorably voted on.

N. Y., Poughkeepsie—Election held to vote on question of purchasing equipment for new department.

N. Y., Ilion—Purchase of chemical fire truck is proposed.

N. Y., Plainville—Plans have been started for creation of fire zone and obtaining fire fighting apparatus.

N. Y., Little Falls—The police and fire board has rejected the recent bids for motor apparatus for the fire department on the ground that lower prices can be had by dividing the equipment. The board adopted resolutions calling for bids on a chassis for a 1-ton truck and for mounting and equipping the chassis. It is expected to spend about \$3,500.

N. Y., Binghamton—The Common Council at the request of Public Safety Comr. has appropriated \$35,000 for the purchase of three motor pumps in the open market. The director will buy three additional triple combination fire trucks, comprising hose, chemical and pump. Three Knox cars in use will be traded in.

N. C., Weaverville—Town is planning formation of fire department.

O., Baltimore—William F. Stone, Maryland Casualty Tower, architect, has been selected to plan two \$40,000 brick fire houses for the city of Baltimore. C. O. Richardson is president of the Baltimore fire board. The houses will be located at Bush and Carroll Sts. and at 28th and Oak Sts.

O., Lakewood—Mayor Louis E. Hill has recommended to the Council the purchase of property at Madison and Newman Aves., for a proposed new fire engine station. The recommendation has been referred to a committee.

O., Columbus—Ord. passed to advertise for bids for purchase of fire hose for Div. of Fire.

O., Massillon—A report of the sub-committee on public safety and improvements estimates the cost of furnishing fire protection to Columbia Heights as follows: Firemen, \$4,680; fire-alarm box, \$150; police-alarm box, \$225, and wire and labor, \$100.

O., Salem—Mayor John W. Post, Safety Director A. H. Chalfant and Service Director J. B. Bristol are making tests of a Robinson chemical wagon just purchased before accepting the same.

O., Columbus—The council has authorized an expenditure of \$3,900 for the purchase of new hose for the fire department.

O., Springfield—Purchase of new pumping engine for local fire department is contemplated.

O., Steubenville—It is recommended by Underwriters' Asso. that twenty-six men be added to fire department and also that more equipment be purchased and station erected on hill top.

O., Port Clinton—E. F. Kuhnle, chief of the Port Clinton fire dept., and a delegation of firemen and business men intend to buy a truck for the city. It is expected that a \$6,000 truck will be bought.

O., Willoughby—The construction of the new fire station here was commenced this week.

O., Port Clinton—Fire Chief Kuhnle has returned with a Stutz machine from Indianapolis which he has purchased for \$7,000. It is equipped with a large chemical tank hose rack and motor driven pump.

O., Mansfield—Ordinance has passed for purchase of apparatus and supplies for fire dept.

Ore., Salem—At a recent return from the election the purchase of fire equipment to the value of \$13,500 was approved.

Ore., Roseburg—Recommendations that better fire protection be provided at the Oregon Soldiers Home have been made by Deputy State Fire Marshals Horace Sykes and James S. Gleason, who recently completed an extensive survey of conditions in this vicinity. The report goes into detail concerning present equipment and advises several changes and improvements. "We recommend that the pumping plant be improved so it will supply at least 750 gallons a minute and that a large main be laid to the most suitable place for connection with the regular water system. We recommend that a main be extended and a hydrant be placed near the hospital. We recommend that a portable hand hose reel be purchased and the hose placed upon it in order that it can be moved about and laid out rapidly. We recommend that a portable forty gallon chemical engine be purchased or an engine with two 35 gallon tanks and that it be provided with two hundred feet of chemical hose."

Pa., Cheswick—At recent meeting it was decided to purchase new suits for firemen, siren and other equipment.

Pa., Warren—Council has ordered that appropriations be granted to various fire companies.

Pa., Mt. Pleasant—Boro. is considering purchasing fire trucks.

Pa., Milton—Fire company will hold Fourth of July celebration to raise funds for an engine.

Pa., Brackenridge—The purchase of electric siren to be used as fire alarm is contemplated.

Pa., Saltsburg—It is proposed to organize volunteer fire department.

Pa., Berwyn—It is reported that fire company is in need of better equipment.

Pa., Elizabeth—Bids received for equipping fire truck rejected.

Pa., Reading—The Friendship and Riverside Fire Companies have received \$1,000 each for purchasing of new fire apparatus.

Pa., Harrisburg—Funds are being raised to purchase new motor apparatus. It is recommended by Bd. of Fire Underwriters that a paid fire department be organized.

Pa., Wexford—Citizens of this place are urging establishment of motor-driven fire fighting apparatus.

Pa., Wyomissing—Modern fire fighting apparatus may be purchased in near future.

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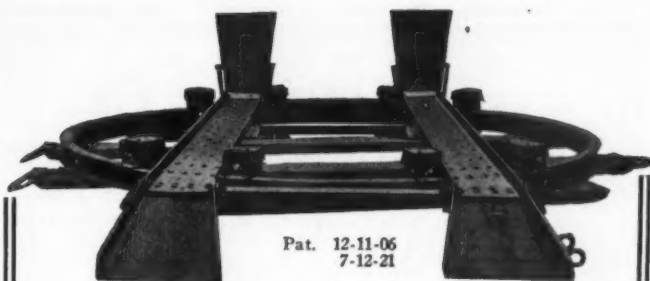
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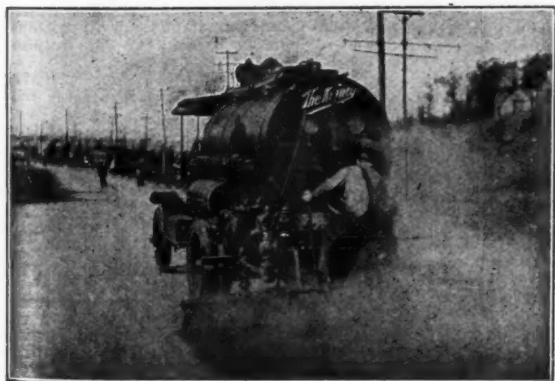
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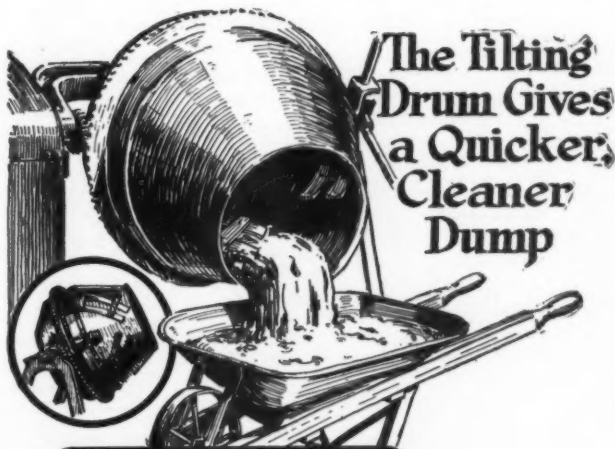
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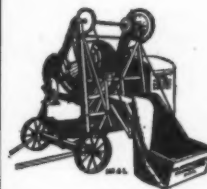


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Pa., Greenville—The borough council has authorized Secretary Hittle to ask for bids for furnishing a modern motorized pumper for the fire dept. and 1,000 ft. of new hose. It is expected that the new equipment will cost \$15,000. Mr. Black is chairman of the fire committee of the council.

Pa., Uniontown—City council has ordered that each of three fire companies be granted \$1,000. Council is also considering purchase of pumper.

Pa., Muhlenberg—Volunteer firemen are planning dance and card party for securing funds to help pay for fire protection.

Pa., Schuylkill Valley—More than \$400 was netted at a supper given by Sanatoga Fire Co. toward purchase of apparatus.

Pa., North East—Local Fire Co. is raising funds for an electric siren.

Pa., Cornopolis—Safety Committee of the Borough Council has been authorized to purchase 250 feet of hose.

Pa., Blossburg—Plans are under way for purchase of motor fire apparatus, equipped with chemical tanks, hose, ladders, etc.

Pa., Monessen—Fire dept. is in need of equipment.

R. I., Burrillville—President of Council has been authorized to purchase fire pumps and other fire apparatus.

S. C., Spartansburg—City Council did not purchase a new fire truck as it had planned to do, but after discussing two bids received decided to postpone action by which it is hoped the result of the property survey of the city will be known an council will have some idea as to how much additional revenue will be received from taxes this year.

S. D., Claire City—Because two expensive fires swept the village during the past few years, efforts are being made to organize a volunteer fire dept. in Claire City.

Tex., Dallas—Purchase of six cylinder pumping engine and hose cart authorized.

Utah, Nephi—At the meeting of the City Council the fire dept. was authorized to purchase a siren whistle which will probably be installed on the roof of the telephone building. The new fire siren will replace the old fire bell which has done service here for many years.

W. Va., Shinnston—Steps are being taken to organize volunteer fire department.

W. Va., Wellsburg—Funds will be raised to purchase equipment.

BRIDGES

Ala., Birmingham—Survey being prep. for const. bridge over Little Warrior River, \$60,000.

Can., Ottawa—The bill to author. incorporation of the Buffalo and Fort Erie Public Bridge Co. and permit it to build a bridge from Buffalo to Fort Erie, was defeated in the Railway Comm. of the Senate as being not expedient nor in the public interest.

D. C., Washington—House passed bill author. Niagara River Bridge Co. to reconstr. its present bridge across Niagara River or to build one on new site to be decided upon by Secretary of War.

Fla., Jacksonville—Application made to erect wooden bridge over Julington Creek. Plans being considered for repair and reconstr. of var. bridges.

Ida., Pocatello—Plan subway under Oregon Short Line R. R., west of McCannon, \$24,000.

Ind., Lawrence—Bids being called for const. bridges in var. counties for State Hwy.

La., New Orleans—Plans being prep. for paved roadways across St. Claude St. bridge over Industrial Canal.

Mass., Springfield—Plans will be carried out to remove old toll bridge and remove piers.

Me., Portland—Conc. bridge planned over Nonesuch River, between Prongs Neck and Saco Rd.

Mich., Lansing—Plans being prep. for const. bridges in var. counties. Bids about July 1. F. F. Lansing, Hwy. Comr.

Minn., Hastings—Bids being called for const. bridges in Dakota Co. J. Swan, Engr.

Minn., Duluth—Northern Pacific R. R. Co. has proposed level grade crossing over railroad's switching tracks.

Mo., Jefferson City—Plans one 46 ft. I beam span skewed on F. A. P. 53, Sect. A; one 30 ft., one 32 ft. and one 45 ft. I beam spans on F. A. P. 53, Sect. C; two re-conc. low water bridges, two 30 ft. and one 46 ft. I beam spans on F. A. P. 53. B. H. Piepmeyer, St. Hwy. Engr.

Neb., Orapolis—Soon call bids for steel & conc. bridge to replace bridge over Platte River, \$40,000. W. S. Krausch, Engr.

N. J., Hackensack—Steamer smashed drawbridge which carries Lincoln Hwy. over Hackensack River, \$50,000.

N. J., New Brunswick—No bids awarded for ext. of bridge over Mile Run Creek.

N. J., Burlington—Burlington co. agree to aid Atlantic co. in const. of wooden bridge to replace Lower Bank bridge, \$40,000; Atlantic co. prefers steel const., \$70,000.

N. J., Burlington—County considering reconstr. of bridge on road from New Egypt to Arnetown, between Burlington and Monmouth cos.

N. J., Trenton—\$5,000,000 bridge and tunnel bond issue awarded.

N. Y., Pultaski—Bids soon for 350 ft. re-conc. & steel bridge 30 ft. over Salmon River, \$60,000. Conc. Steel Engr. Co., 21 Park Row, N. Y., Engrs.

N. Y., Binghamton—Plans concrete bridge at Ferry St., \$100,000. Q. De Quarles, Albany, Engr.

O., Canton—The county commissioners have included in their budget \$200,000 for the repair of county bridges this year.

O., Toledo—The council has voted a \$150,000 bond issue to pay the city share of eliminating the East Broadway grade crossing which is considered Toledo's most dangerous death trap. The entire improvement is estimated at \$422,000.

O., Youngstown—Recommendation of the new streets committee, Service Director Chas. F. Schaubly, City Engr. George F. Turner and Councilman Harry Thomas that bonds amounting to about \$40,000 be issued to repair Elm St. bridge have been approved by the city council.

O., Toledo—Coun. will be asked to approve \$150,000 bond issue for elimination of East Broadway grade crossing.

O., Youngstown—The Council has approved a committee report recommending a bond issue for the repair of Elm St. bridge over Andrews Hollow. City Engr., Geo. F. Turner, estimates this at \$57,000. There is \$20,000 in hand. The city engrs. will within a few days have complete plans for the inclusion of the Belmont Ave. bridge in grade elimination project.

O., Cleveland—The Co. Comrs. have sold to the Milliken-York Co., Plain Dealer Bldg., this city, \$300,000 on bonds for the construction of a bridge across Big Creek valley at Ridge Rd., bids on which will be received on July 1.

Pa., Reading—Plans prep. for hwy. bridge in Berks Co. Chas. Sanders, Engr.

Pa., Middleburg—Plans prep. for repair of bridge for Co. Comrs. Jas. B. Long, Boyer Arcade, Morristown, Pa.

Pa., Pittsburgh—Bids being called for \$250,000 bond issue auth. for const. bridges.

Pa., Mayville—Bridge across Pennsylvania R. R. condemned by Vil. Bd.

Pa., Harrisburg—Pub. Service Comm. orders const. bridge over State Hwy. near Cherry Springs Sta., \$16,131.

Pa., Pittsburgh—Penn. R. R. station having plans prep. re-conc. hwy. bridge over tracks of Turtle Creek branch ext. to Saltsburg. R. M. Trimble, Penn. Sta. Assist. Mgr.

Pa., Erie—An ordinance has been passed authorizing \$150,000 Railway Crossing bonds.

Pa., Harrisburg—Co. Comrs. auth. \$250,000 bond issue for bridge impv.

Pa., Harrisburg—Tentative plans being prep. to widen Market St. subway.

Pa., Girard—Chicago & St. Louis R. R., 327 South La Salle St., Chicago, Ill., prep. plans for conc. & steel bridge at Rice Ave., \$66,000. F. E. Winter, Erie St., Engr.

R. I., Providence—Plan 80 ft. bridge at Union Ave. 50 ft. wide, \$25,000; M. H. Bronsdon City Engr.

S. C., Charlotte—Will soon call bids for const. bridge proj. over Savannah River; also two smaller structures across Lawrel Hill and Beech Hill Canals, conc. or treated lumber.

Tenn., Chattanooga—Bids for overhead railroad bridge, Whiteside Stearns Coal Co., 609 James Bldg.

Tex., Beaumont—Plans being prep. for bridge and deck girder across Pine Island, concrete. A. C. Love, Engr.

Tex., Brenham—Plans being prep. for const. bridge across Brazos River. Concrete and steel, \$200,000. G. A. Bracker, Engr.

Tex., San Antonio—Southern Pacific R. R. bridge and international bridge spanning Rio Grande, at Eagle Pass, washed out.

Tex., Beaumont—Jefferson Co. prep. plans deck girder & conc. trestle bridge over Pine Island Bayou Hwy., \$42,560.

W. Va., Benwood—The Interstate Bridge Co. has applied to the City Council for a franchise to const. an interstate toll bridge between here and Bellairs, O. It is expected that work on this bridge will be begun this fall.

Wis., Eau Claire—Special election June 27 for \$80,000 bond issue for proposed bridge, \$240,000; \$80,000 city's share of expense.

Wyo., Cheyenne—Plans 286 ft. hinge steel cantilever arch bridge 18 ft. wide, 5 mi. west of Green River, Sweetwater Co., \$30,000.

MISCELLANEOUS

Cal., Merced—Plan to offer July 1 \$4,000,000 Irrigation bonds.

Ida., Murtaugh—\$3,700,000 Reclamation bonds voted.

Ida., Hayden—\$100,000 bond issue approved by Reclamation Bond Comrs.

Ida., Hayden Lake—Irrigation Dist. (P. O. Hayden Lake).—An issue of \$100,000 irrigation bonds has been approved by the Reclamation Bond Commission.

Ind., Indianapolis—City Comm. considering plans to straighten Eagle Creek to prevent floods.

La., Tama—Coner Dam and Canal—Postponed indef. Owner, J. G. Cherry & Co., creamery machy., 4th Ave. S. near 10th St., Cedar Rapids. Consult Engr., Power Engrg. Co., 621 Metropolitan Life Bldg., Minneapolis. To replace old brush dam. No power equip.

La., Sioux City—Drainage—Woodbury Co. making plans. Garretson Drainage Dist. 20,000 acres. 40 mi. open ditch. 1,000,000 cu. yds. excav. Engr., C. E. Moriarty, 513 United Bank Bldg., Sioux City. Willis M. Pritchard, Co. Aud. Ready for bids about Oct. 1.

Md., Baltimore—Plan extensive impv. at Bdway. recreation pier.

Mass., Springfield—Proposition being considered for changing harbor line.

Mass., Springfield—City proposes to include parks and parkway along water and sewage intercepting line.

Mass., Springfield—Plans to const. dam across Connecticut River above Windsor Locks, \$5,000,000 or \$6,000,000 proj.; 30,000 kilowatts is expected. Army Engrs. prep. plans.

Mich., Oakland—\$27,500 Drainage bonds awarded to Bumpus-Hull & Co., Detroit.

Mont., Toole Co.—\$223,000 Irrigation bonds awarded to J. C. Hoshier & Co., New York.

Mont., East Bench—\$500,000 bond issue for const. of dam being considered.

Mo., St. Francis Levee Dist.—\$250,000 Levee bonds awarded to Whitaker & Co., St. Louis.

Mo., Independence—Will vote July 1 on \$60,000 Park bonds.

Miss., Belzoni—Morgan Engineering Co. and Lamar Fontaine, Jr., are making surveys for Honey Island Drainage Comrs. of Carroll, Holmes, Humphreys and Leflore counties; 150,000 acres in district; planned to build levee along west bank of Yazoo River.

New York—Application filed by American Superior Power Co. for prelim. permit to use increased diversion of water for purpose of canal on American side of Niagara Falls and furnishing electric power to New York City and other points in N. Y. State. Proposal to const. transportation line across country from Lewiston, Niagara county, to Yonkers and thence south, \$27,457,000.

Pa., Harrisburg—Comfort station planned for market square.

Tex., Henderson—Attorney General approved \$100,000 Levee bonds.

Wash., Riverside—Petition accepted for formation of irrigation district in Riverside.

Wis., Racine—New police station planned, \$50,000.

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Ind., Scottsburg noon, July 10
For impv. 15,656 ft. Kinderhook and Nabb Rd., \$23,036—W. K. Horner, Co. Aud.

La., Baton Rouge July 30
For furn. clay sand gravel, or washed gravel and clay sand gravel—J. M. Fournay, St. Hwy. Engr.

Minn., Le Sueur Center 2.30 p.m., July 10
For gravel surf. 3 mi. St. Rd. No. 1—S. McMillen, Co. Aud.

Minn., Rochester 2 p.m., July 3
For treat. with Tarvia "B" on various sts.—A. F. Wright, City Clk.

Minn., St. Paul 11.30 a.m., July 10
For grad. and impv. sev. sts.—H. W. Austin, Purch. Agt.

Minn., St. Paul 10 a.m., July 10
For const. St. Projs. o. 1-27 and 2-24, incl. bridge, etc.—C. M. Babcock, St. Comr. Hwys.

N. Y., Bronx 11 a.m., July 11
For regulat., grad., curb., sidewalks, drain., etc., const. sewers and appurt.—Wm J. Flynn, Act. Boro Pres., Mun. Bldg.

N. Y., Manhattan 2 p.m., July 11
For removing old pavt. from River-side Drive viaduct—Grover A. Whalen, Comr. Plant & Structures, Mun. Bldg.

N. Y., Queens 11 a.m., July 10
For regulat. and grad. rdway. and setting curb—Maurice E. Connolly, Boro Pres., 68 Hunterspoint Ave., L. I. City.

N. D., Enderlin July 2
For sidewalks, crossing, curbs and gutters—Clifford Danielson, City Aud.

O., Columbus noon, July 13
For st. impv. and sidewalk const.—W. H. Duffy, Dir. Pub. Serv.

O., Lorain July 6
For const. new and relay. old sidewalks—Dorothy Cooper, Clk., Dir. Pub. Serv.

O., Lorain July 7
For grad., drain., curb. and pav. 4 sts.—Dorothy Cooper, Clk., Dir. Pub. Serv.

O., Wauseon July 10
For pav. in 2 sts.—John C. King, Vil. Clk.

Ore., Enterprise July 5
For const. 5.73 mi. Wallowa-Tow-watka Rd. by grad. and crushed rock surf.—Co. Comrs.

Pa., Clairton July 10
For grad.—Boro Council.

Pa., Sharon 9 a.m., July 11
For pav., repav. and resurf. pavts.—Will M. Stewart, City Clk.

STREETS AND ROADS

Conn., Hartford—State Hwy. Comr. notified Rep. of Conn. Light & Power Co. that cost of modifying proposed rte. of new Housatonic Hwy. to drive it out of area expected to be flooded by dam to be erected by Power Co. Will make modification if Power Co. will share difference of \$75,000. Original layout \$200,000, and with proposed change, \$275,000.

D. C., Washington—Fed. Aid for const. hways. definitely assured, \$50,000,000, \$65,000,000 and \$75,000,000 for fiscal years of 1923, 1924 and 1925; \$6,500,000 voted for Forest rd. const. for 1924 and 1925.

Fla., Tampa—\$3,000,000 Hillsborough Rd. bond issue voted. Will advertise for bids for 160 mi. new rds. very soon.

Fla., Pensacola—Escambia Co. may rescind contr. for five mi. rds. and several short bridges, due to failure of contractor to file surety bond, \$54,000; contr., \$109,000.

Fla., Jacksonville—Bids rejected for impv. Pinellas Co. Rd. as too high. Plan to eliminate rd. projects in rd. program to approx. \$2,500,000 instead of \$3,403,000, as proposed.

Ill., Decatur—Bids will be received for pav. about July 6.

Ind., Kamiah—\$50,000 hwy. bonds voted for const. Kamiah-Rex Perce Hwy.

Ind., Indianapolis—City considering paving between car tracks in Gale St., between Roosevelt Ave. and Twenty-fifth St.

Pa., Washington July 6
For 1 mi. rein. conc. rdway., \$25,000—Supvrs., East Pike Run Twp.

Quebec July 8
For graveling 7½ mi. Beauceville-Sherbrooke Hwy., \$30,000—I. L. Boulanger, Deputy Minister, Dept. Rds.

R. I., Cranston 8 p.m., July 5
For resurf. conc. base and grad. Park Ave.—Arthur A. Rhodes, Act. Mayor.

Tex., Dallas 10 a.m., July 3
For const. impvs. in Wycliffe Ave.—M. G. James, City Sec.

SEWERAGE

Minn., Anoka 8 p.m., July 3
For const. san. sewer system—City Com.

Minn., Barnum 8 p.m., July 17
For sewer system—Vil. Council.

Minn., Grove City 8 p.m., July 3
For const. part of sewer system and the sewage disposal plant of vil.—Vil. Council.

Minn., St. Paul 11.30 a.m., July 10
For const. sewer—H. W. Austin, Purch. Agt.

O., Cleveland 11 a.m., July 12
For 9,240 ft. 8-in. sewers, with water curb ext., etc.—Co. Comrs.

Pa., Sharon 9 a.m., July 5
For const. san. sewers—Will M. Stewart, City Clk.

Wis., Appleton 4 p.m., July 5
For sewers in 2 sts.—E. L. Williams, City Clk.

LIGHTING AND POWER

Ind., Noblesville July 5
For dam to provide power for local plant, also elect. equipt.—Noblesville Heat, Light & Power Co.

Okla., Okene July 6
For ext. to light and power plant, \$40,000—W. F. Wooten, City Clk.

WATER SUPPLY

La., Nevada July 10
For 200,000 gal. rein. conc. reservoir—W. A. Olson, Co. Drain. Engr.

Minn., Oriska 7.30 p.m., July 5
For repairs on artesian well—Special Committee of Bd. Aldermen.

Okla., Okene July 6
For const. well, \$5,000—W. F. Wooten, City Clk.

S. D., Harold July 10
For waterworks system, \$20,000—Western Engrg. Co., Yankton.

Tex., Dallas 10 a.m., July 3
For gate valves, bell and spigot pipe, cross, tees, bend, etc.—M. G. James, City Sec'y.

FIRE

O., Columbus noon, July 12
For 3,000 ft. 2½-in. fire hose—W. H. Duffy, Pres., Bd. Purchase.

BRIDGES

Minn., Granada 2 p.m., July 19
For const. rein. conc. hwy bridge—C. R. Hill, Chn., Twp. Bd.

Minn., Hastings 1.30 p.m., July 10
For 30-ft. span, deck girders, conc. piers, etc.—J. Swan, Co. Engr.

N. J., Salem July 8
For Bridge 57, Route 6, St. Hwy. System—H. B. Keasbey, Co. Engr.

O., Cincinnati July 3
For 8 bridge spans—Purch. Agt., Cincinnati Northern Railroad.

Tenn., Nashville July 14
For substructures, conc. piers and approaches for Clarksville bridge, \$250,000—St. Hwy. Dept.

W. Va., Fayetteville July 3
For bridges in county—Co. Comr.

DRAINAGE AND IRRIGATION

Ind., Indianapolis 10 a.m., July 15
For const. levee—Oscar Lee, Supt. Const.

Minn., Albert Lea 10 a.m., July 8
For const. Judicial Ditch No. 5—Fred Tavis, Co. Aud.

Minn., Austin 10 a.m., July 10
For const. Judicial Ditch No. 6—O. J. Simmons, Co. Aud.

Minn., Redwood Falls July 7
10 a.m., for open work on Co. Ditch No. 52; 1 p.m., Co. Ditch No. 68; 3 p.m., Co. Ditch No. 33—L. P. Larson, Co. Aud.

Minn., Redwood Falls 9 a.m., July 8
For work on Co. Ditch No. 69—L. P. Larson, Co. Aud.

O., Greenville 10 a.m., July 8
For impv. Wise Ditch No. 24—P. Townsend, Co. Surv.

MISCELLANEOUS

O., Akron noon, July 7
For furn. lead pipe—B. J. Hill, City Purch. Agt.

Pa., New Kensington 8 p.m., July 18
For 30-ton garbage incinerator plant—Boro Sec.

Ind., Brownstown—July 7, 1922, at 1 p. m., by Treasurer of Jackson Co., for sale, \$66,600 and \$15,500 highway improvement bonds, 5 per cent., 1 at 15 years, 1 at 10 years. Fred C. Mitchell, et al. in Vernon Twp., and William Surenkamp, et al. in Washington Twp. C. C. Finch, Treasurer.

Ind., Kentland—July 8, 1922, by Treasurer of Newton Co., for sale, \$32,600 highway improvement bonds, 4½ per cent., ten years. Wm. C. Graefultz, et al. Road in Lake Twp. John J. Sell, Treasurer.

La., New Orleans—Plans prep. for pav. Magazine St.

La., New Orleans—City considering pav. 51 sts.

La., Catahoula Parish—Contemp. bond issue of \$690,000 for model hways.

Md., Frederick—Recommendation made for new north and south thoroughfare, also widening of Court St.

Md., Howard Co.—Bids July 15 for \$300,000 bonds for pub. rds.

Me., Portland—Will expend \$6,000,000 in 1921 toward completion of Roosevelt Trail, by eleven States, 4,018 mi. long when completed. Albert W. Tracey, Duluth, Minn., Gen. Mgr. of International Hwy. Assn., has charge of the work. Hiram Ricker, Pres. of Hwy. Organization, Portland, to promote the work in Maine.

Mich., Monroe—\$100,000 voted for city's share of impv. 8 streets.

Mich., Charlotte—Plan to pav. North Main St.

Minn., Duluth—Petitions circulated to pav. West Third St.

Mo., Kansas City—City proposes to impv. by curbing Tracey Ave. and 39th St., 18th St., Bennington Ave., Olive and Lydia Ave. and Newton St., paving 13 streets and grading 4 streets and sewer const. in two.

Mont., Great Falls—Survey being prep. for new rd., 14 mi., \$150,000.

N. J., Hoboken—North Bergen Twp. Ord. passed to impv. Sunnyside Ave.

N. J., Rahway—City orders construction conc. sidewalks on var. sts.

N. J., Jersey City—\$8,500 approp. for repaving West Side Ave.

N. Y., Syracuse—Contracts for const. Jordan-Baldwinsville Rd., 7.16 mi., will be awarded June 30.

N. Y., Newark—Bids soon for const. Phelps-Newark Rd., \$58,000.

N. Y., Syracuse—Common Coun. voted approp. for \$150,000 for approach to new river bridge at Ridge Rd.

N. Y., Bath—Village considering paving certain sts. and ext. water mains. Will call bond issue of \$20,000 or \$25,000.

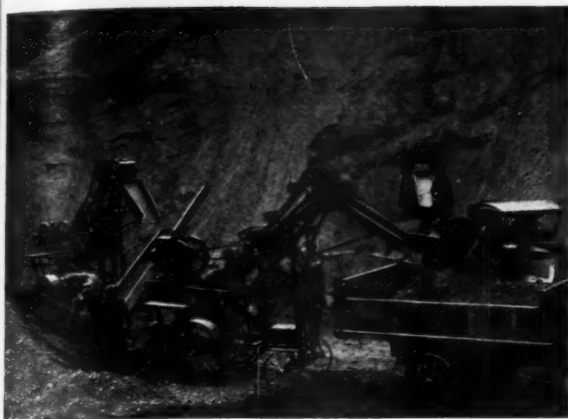
New York—State will receive \$2,464,299 Fed. Aid for const. hways. for next three years.

N. C., New Bern—10,000 tons shell rock to be used for surf. dirt rd. from Clarks to Dover, 8 mi.

North Carolina—\$1,139,556 apportioned State rd. work.

O., Delaware—Bids July 7 for \$27,000 Delaware Co. Rd. bonds.

O., Ironton—City ordered impv. of Second St., paving, and Seventh St., grading and paving brick.



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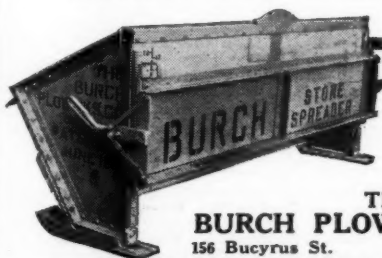
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PHILADELPHIA, PA.

O., Delaware—Plan impv. Prospect-Mt. Vernon Joint Co. road.

O., Cincinnati—Resol. passed to treat with oil Ward St. and Lee Pl.

O., Cleveland—These paving projects are pending: Tiffin, paving 5 streets as specified by the city engr.; Greenfield, paving So. Washington St.; Cadiz, paving E. Main St.; Canton, paving the Alliance-Mernerva Rd., letting postponed to early future date; Steubenville, paving W. Adams St.; Ashtabula, paving Chestnut and Church Sts., for which a bond issue of \$32,000 to cover the city's cost has been authorized; Athens, paving Main St. with brick or asphalt; Lima, paving College Ave.; Lorain, repaving Broadway and const. two sewers; Kenmore, resurfacing a number of streets on which estimates are now being prepared; Cuyahoga Falls, for the const. of sidewalks on half a dozen sts.; Norwalk, paving East Main and West Main Sts.; Hamilton, improving Haldimand Ave., by const. curb, gutters and sewers; Tiffin, paving W. Washington St., for which a bond issue of \$25,000 is proposed.

Pa., Philadelphia—Co. Comrs. Mercer Co. considering \$1,300,000 road bond issue.

Pa., Philadelphia—Ord. passed to define obligation of Penna. Reading R. R. Co. with respect to paving between tracks in various locations.

Pa., York—Bids July 15 for York Rd. bonds, \$1,000,000.

Pa., Harrisburg—Co. Comrs. announced that contracts for pav. Horsehoe Pike between Hockersville and Hummelstone will be awarded latter part of July.

Pa., Erie—Com. considering establishment of grades in 20 sts. Bids for repav. Sixteenth St. and Twenty-first Sts. being called.

Pa., Erie—Ord. passed to const. asph. pavt. in Front St., \$19,900. Resol. submitted for pav. Elmwood Ave.

Tex., Galveston—Will adv. for bids pav. 12 blks. in southern part of city.

Tex., Dallas—Com. formed to impv. direct crosstown ave. pav. from North Fitzhugh to H. and T. C. and Water Sts.

R. I., Lincoln—Town Com. plan const. sidewalks and curbing on Walker St.

West Virginia—\$2,000,000 apportioned for State Rd. for 3 years.

SEWERAGE AND SANITATION

Ill., Rockford—Bids soon for const. sewer. \$720,000—J. H. Hallstrom, City Com.

Ky., Louisville—Plan to begin local sewer sys. soon.

Mich., Lansing—Will hold spec. bonding election during July for const. sewers and underground work. \$550,000.

Mich., Lansing—Com. recommend sewer const. in Niagara Ave. in 1923.

Mich., Lansing—Merlin Wiley, Attorney General of this State, has advised Dr. R. M. Olin, State Comr. of Health, to take immediate steps to compel cities of Grand Rapids, Kalamazoo, Battle Creek, Jackson, Durand and Howell to comply with the State order for the construction of sewerage plants. The most expensive job will be involved in the city of Grand Rapids, where the plant will cost not less than half a million dollars.

N. J., West Orange—Ord. passed to const. san. sewer 8 in. main in McKinley Pl. and Marnon Terrace.

N. J., Trenton—Ord. passed to const. sewer on Moreland Ave.

N. Y., Albany—Larger sewer proposed for Arch and Pearl Sts.

N. Y., Blauvelt—Survey being made for const. sewerage sys. and disposal wks. Bond issue will be voted before final bids for work will be asked.

N. Y., Boro Queens—Resol. passed to const. sewer in Homans Ave.

O., Cleveland—The Courts have decided that the village of Euclid use part of a \$500,000 appropriation for the sewerage disposal plant which is now proposed to erect in that village.

O., Upper Sandusky—Mayor Chas. W. Bringman states that Engr. Southern will have specifications here this week for a new lighting system for this city. When plans are adopted bids will be invited from competing companies for supplying the city with light and power.

O., Traverse City—Recommendations have been handed to the City Commission by City Engr. C. E. Sawyer that the city build a sewage disposal plant.

O., Wilmington—The Council has decided to submit to the popular vote a bond issue for the construction here of a sewerage system.

O., Columbus—St. Bd. of Health will take action to relieve condition in Allcon Creek, south of Westerville. Plan new disposal plant, \$43,000.

O., Ironton—Resol. passed to const. san. sewer from Walnut Alley to Kemp Ave.

LIGHTING AND POWER

Kan., Topeka—Kansas Elec. Power Co. granted permission to issue \$6,785,000 securities.

N. C., Asheville—Formation of a permanent southeastern waterpower congress with an organization extending over six States, comprising the southern Appalachian range, for the purpose of studying every phase of the present and potential waterpowers in the area, looking to their further utilization and conservation, is practically assured with the opening of the waterpower conference of the Southern Appalachian States, has been opened.

O., Marietta—Plans under consideration by Coun. for the installation of a new lighting plant in this city, to be erected in conjunction with the present waterworks plant at East Norwood.

O., Hamilton—Mayor H. J. Koehler, Jr., states that a statement will shortly be made concerning the proposed construction of a new municipal electric lighting plant which is now being considered jointly with a citizens' committee.

O., Hamilton—Wm. F. Mason, Service Dir., auth. to advertise at once for bids for cross-arms, wires, hardware, poles and other electric lighting equipment needed for the extension of the city light distribution sys.

O., Upper Sandusky—Coun. considering in an informal way some project for raising funds for a municipal electric distribution sys. Carolton Neu, City Engr.

WATER SUPPLY

Ida., Lewiston—City has taken over Lewiston Water Co. and expect to do extensive development—D. S. Wallace.

Mont., Columbia Falls—Expect to offer city water plant for sale to Columbia Falls.

N. J., Dover—\$45,000 water bonds awarded.



6 CATALOGS

(See Below)

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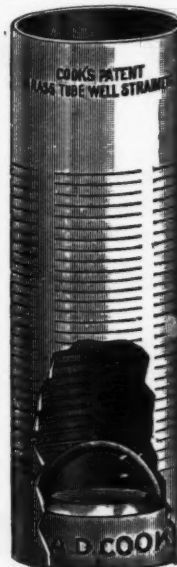
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Sealed proposals will be received by the undersigned at their office, No. 55 Lancaster Street, Albany, N. Y., on Tuesday, the 11th day of July, 1922, at one o'clock p. m., advanced standard time, which is twelve o'clock noon, eastern standard time, for the improvement of highways in the following counties:

CATTARAUGUS(one highway: 4.15)
CHENANGO(one highway: 8.82)
DELAWARE(two highways: 7.59 & 7.70)
MADISON(one highway: 1.60)
ST. LAWRENCE(one highway: 10.14)
WASHINGTON(one highway: 0.62)
WYOMING(one highway: 4.68)
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ALSO FOR THE RECONSTRUCTION OF THE FOLLOWING:
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Maps, plans, specifications and estimates may be seen and proposal forms obtained at the office of the Commission in Albany, N. Y., and also at the office of the division engineers in whose division the roads are to be improved or reconstructed. The addresses of the division engineers and the counties in which they are in charge will be furnished upon request.

The special attention of bidders is called to "General Information for Bidders" in the itemized proposal, specifications and contract agreement.

HERBERT S. Sisson, Commissioner.
J. C. FINCH, Secretary. (25-1-2)

N. C., Charlotte—Plans being prep. for new water plant. \$300,000 water bonds auth.

O., Toledo—Resol. passed to const. water main and appurtenances in South View Ave.

O., Newport—Propose \$220,000 bond issue for cementing basins and establishing modern filtration plant. Bonds sold for 6,000,000 gal. pump; also chlorinating plant proposed, \$90,000.

R. I., Providence—Plans submitted for 3 1/2 mi. tunnel, with two 1/2 mi. aqueduct to carry water from new lining, \$1,000,000. Retire proj. \$250,000. Seltuate supply tunnel 7 ft. 9 in. diam. built through rock and will have conc. built through rock and will have conc.

Wash., Everett—Application granted for water mains along sts. and alleys in Alderwood Manor by Snohomish Co.

Wash., Yakima—Purchase of permanent water right for town of Zillah approved; \$4,085.85 for entire dist.

Wash., Naches—An election recently held resulted in favor of \$10,000 water bonds.

Wash., Sequim—The Western Bond & Mortgage Co., of Portland, has been awarded an issue of 6 per cent. water-works system extension and improvement bonds to the amount of \$17,000.

Wis., Stevens Point—The Harris Trust & Savings Bank, of Chicago, recently purchased an issue of 5 per cent. A. & O. 10-18-year (serial) water-works coupon bonds to the amount of \$100,000.

Wyo., Newcastle—Proceeds of recent sale of bonds will be used for extending water mains within city and for improving and extending present supply to include certain springs in South Dakota.

BRIDGES

Mich., Hudson—New York Central & Cincinnati Northern R. R. plan new bridge, conc.

N. J., Newark—New bridge being considered to replace Lincoln Hwy. span over Hackensack River, \$2,000,000.

N. J., Jersey—All necessary repairs to new Turnpike Bridge will be made immediately.

N. C., Wilmington—No opposition registered against proposed bridge over Town Creek.

O., Cuyahoga Falls—The Council has been asked to take action for the construction of a new bridge at Broad St.

O., Urbana—Engineers of the Penn. R. R. Co. are in conference with County Engineer R. H. Smith relative to the construction of a new overhead bridge across the Pennsylvania right-of-way, east of Jackson Hill. Plans are being considered for a concrete structure. County Engineer Smith also has plans for replacing the 60-ft. steel bridge over Dugan Creek, recently destroyed by cyclone. Plans are also ready for a 20-ft. bridge just west of Spring Hills, which was also destroyed by floods.

Pa., Pittsburgh—Plan prep. for raising bridges over Allegheny River at Sixth, Seventh and Ninth Sts; new structures planned.

Wash., Seattle—Bids in Aug. for const. superstructure of Spokane St. Bridge, \$1,500,000. Contr. to be let calls for bascule portion of bridge, 45 ft., two-side spans and girder crossing steel const., 6 ft. sidewalk and two car tracks, besides rdway for vehicular traffic; 3,760,000 lbs. steel, 351,000 lbs. machinery and 8,520 yds. conc. in counterweight.

W. Va., Clarksburg—The Harrison County Court at its session last week voted to construct 16 bridges in various parts of the county, bids on which will be invited this week and opened within 30 days.

Wis., Eau Claire—City Coun. contemp. const. bridge, \$240,000. O. E. Oien, Clk.

FIRE

Md., Cumberland—Residents living at La Vale and vicinity plan the organization of a fire department to protect property in that section. The management of People's Park, it is said, offers to house the apparatus if such should be purchased—in fact erect a fire house.

N. Y., Corning—Riverside, incorporated from the former hamlet of Centerville last month, is to have a water supply and fire protection. It is proposed that the village own its own mains and fire hydrants but that the water be purchased at wholesale either from the village of Painted Post or the city of Corning.

O., Dayton—City Purchasing Agent Bates states that the following bids have been received for the new 50-ft. ladder truck for the Linden Ave. house: Mack International Motor Car Co., \$9,721; White Motor Car Co., \$8,325; Indiana Truck Co., \$6,515; American-La France four-cylinder, \$8,500; Seagrave Motor Car Co., four-cylinder, \$8,500; American-La France, six-cylinder, \$9,000; Seagrave, six-cylinder, \$9,000.

O., Sandusky—Port Clinton, O., has ordered a new \$7,000 Stutz truck from Indianapolis, Ind., which is expected there any day.

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For your new road contract you will want pipe for your water service. Our used pipe, rethreaded and coupled, will answer your requirements the same as new pipe and will save you considerable money. We carry all sizes from 1/4 to 12 inches, have large stock, 1, 1 1/4, 1 1/2, 2, 2 1/2, 3 and 4 inches.

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Pa., Greenville—W. C. Black, chairman of the fire committee of the City Council, has introduced a measure recommending the purchase of a modern motorized fire pump for the fire dept. and 1,000 ft. of new hose. The estimated cost of these improvements is \$15,000.

MISCELLANEOUS

Ala., Gadsden—Fed. Govt. making prep. to dredge Wills Creek.

Fla., St. Petersburg—\$280,000 bond issue planned for drainage.

D. C., Washington—Bill endorsed for const. Boulder Canyon dam and Fed. development of lower Colorado Basin. \$70,000,000 approp.

Ind., Noblesville—Plans prep. for const. dam across White River by Noblesville Heat, Light & Power Co. Alex R. Holliday, Pres. Contracts to be awarded July 5. \$100,000.

Miss., Vicksburg—City will vote July 12 on issuance of \$80,000 of bonds for providing permanent river landing.—J. J. Hayes, Mayor.

Md., Salisbury—Will dredge Wicomico River and const. longer span bridge at Main St.

N. D., Bismarck—Survey will be prep. to irrigate entire water shed of Missouri and Yellowstone Rivers to prevent floods.

N. Y., Syracuse—Completion of impv. of Onondaga Creek will be delayed another year as result of two floods wrecking equipment and walls of creek of W. Newell St.

N. C., Wilmington—City plans const. of downtown comfort sta. in few months.

Pa., Erie—Com. requested to acquire property for add. to park and widening of East Lake Rd.

Pa., Harrisburg—Co. Comrs. approved plans for comfort sta. \$40,000.

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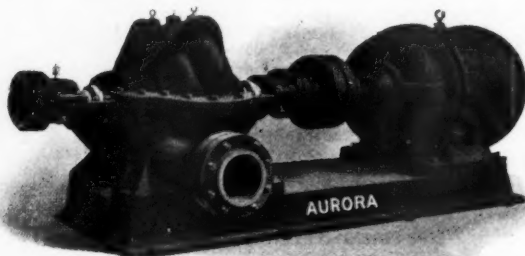
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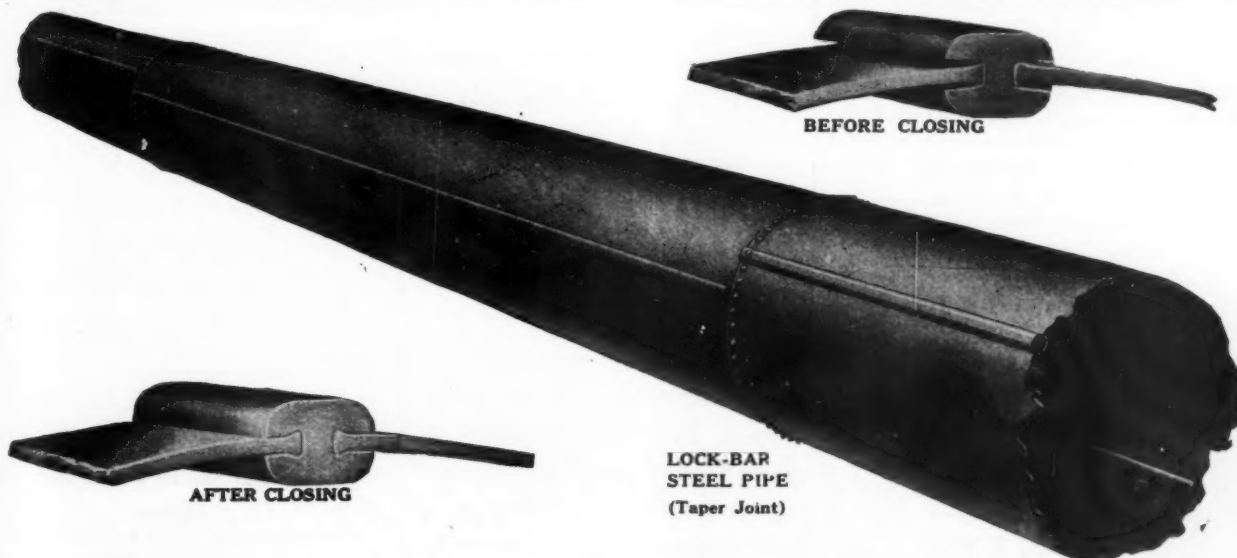
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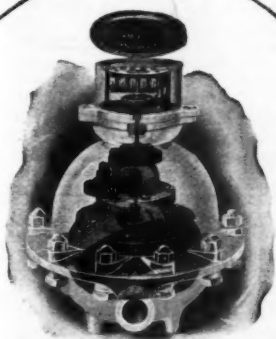
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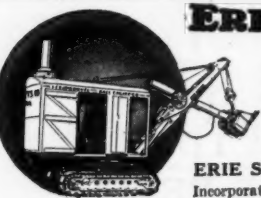
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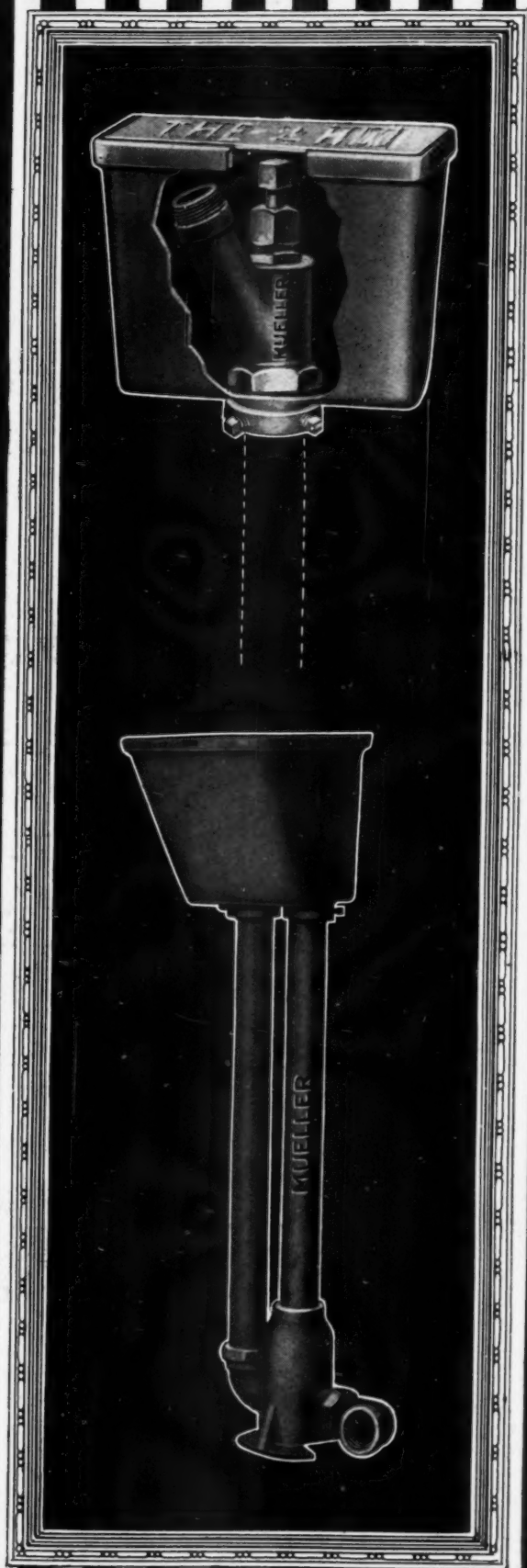
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